PART A

IONOSPHERIC DATA

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

CRPL-F 178
PART A

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numberical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949
December		150*	150*	150	42	11	15	33	53	86	108
November	137	150*	150*	147	35	10	16	38	52	87	112
October	139	150*	150*	135	31	10	17	43	52	90	114
September	141	150*	150*	119	30	8	18	46	54	91	115
August	142	150*	150*	105	27	8	18	49	57	96	111
July	141	150*	150*	95	22	8	20	51	60	101	108
June	143	150*	150*	89	18	9	21	52	63	103	108
May	146	150*	150*	77	16	10	22	52	68	102	108
April	150*	150*	150*	68	13	10	24	52	74	101	109
March	150*	150*	150*	60	14	11	27	52	78	103	111
February	150*	150*	150*	53	14	12	29	51	82	103	113
January	150*	150*	150*	48	12	14	30	53	85	105	112

*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1958.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	197	200	201	200
1958	199	201	201	197	191	187	185	184	183	181	179	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
- Hobart, Tasmania
- Townsville, Australia

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
- Watheroo, Western Australia

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
- Bunia, Belgian Congo
- Elisabethville, Belgian Congo
- Leopoldville, Belgian Congo

Universidad Mayor de San Andres:
- La Paz, Bolivia

British Department of Scientific and Industrial Research, Radio Research Board:
- Ibadan, Nigeria (University College of Ibadan)

Defence Research Board, Canada:
- Baker Lake, Canada
- Churchill, Canada
- Eureka, Canada
- Winnipeg, Canada

Radio Wave Research Laboratories, National Taiwan University, Taipeh, Formosa, China:
- Formosa, China

Instituto Geofisico de Los Andes Colombianos:
- Bogota, Colombia

The Finnish Academy of Sciences and Letters:
- Sodankyla, Finland

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
- Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Central Institute of Meteorology, Budapest, Hungary:
Budapest, Hungary

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

Jonospheric Institute, Breisach, Germany:
Freiburg, Germany

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Campbell I.
Rarotonga, Cook Is.
Scott Base, Antarctica

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

Rhodes University, Union of South Africa:
Grahamstown, Union of South Africa

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:
Kiruna, Sweden
Lycksele, Sweden
Upsala, Sweden

National Bureau of Standards (Central Radio Propagation Laboratory):
Chiclayo, Peru
Chimbote, Peru
Ellsworth, Antarctica
Talara, Peru (Instituto Geofisico de Huancayo)
Wilkes Station, Antarctica

TABULATIONS OF ELECTRON DENSITY

Reduction of hourly ionospheric vertical soundings to electron density profiles is currently a part of the systematic ionospheric data program of the National Bureau of Standards. Scaled data for this purpose are being provided by stations operated by NBS and the U.S. Army Signal Corps. For the present, the hourly profile data from one NBS station, Puerto Rico, are being provided in the CRPL F Series. These data are in place of the other quantities formerly provided by this station. The very considerable task of scaling the ionograms for this purpose is undertaken by Mr. T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station (Ramey AFB, P. R.); the computations are performed at the NBS Boulder Laboratories.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

Quantity	Units	Remarks
Electron Density (N)	(electrons/cm^3 $\times 10^{-3}$)	Body of table; given at each 10 km of height.
N_{max}	" " "	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above h_{max} is always given as exactly equal to N_{max} (unless h_{max} coincides with a 10 km level).
QUALification	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	(electrons/cm^2 column $\times 10^{-10}$)	Obtained by integration of the profile between the limits HMIN and HMAX.

ELECTRON DENSITY

PUERTO RICO 60 W 1 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	228	217	221	250	295	313	271	216	111	110	110	110
HMAX	330	317	312	428	445	455	374	300	284	310	307	319
SHMAX	733	616	448	600	526	453	441	576	1045	1792	2093	2563
KM												
460						557						
450					573	556						
440					573	547						
430				573	566	529						
420				572	553	501						
410				564	533	464						
400				551	508	421						
390				530	477	371						
380				505	437	320	661					
370				477	389	262	660					
360				439	335	209	648					
350				403	281	155	624					
340				362	227	97.2	586					
330	11.7			320	173	62.9	540					
320	1193	982	754	276	112	40.2	469					2716
310	1113	978	754	236	65.7		389			2128	2571	2700
300	1050	954	742	195	29.1		294	1027		2108	2557	2644
290	950	911	712	156			179	1012	1446	2048	2487	2546
280	820	848	669	115			77.6	966	1443	1941	2354	2413
270	679	764	599	75.6				892	1411	1801	2161	2237
260	508	655	516	47.2				794	1341	1623	1932	2032
250	323	477	389	1.3				667	1240	1425	1692	1786
240	127	240	240					508	1096	1208	1420	1556
230	26.3	97.2	83.8					335	932	982	1143	1316
220		30.9						83.8	754	774	917	1073
210									573	619	754	875
200									446	487	608	691
190									335	396	498	551
180									248	316	410	446
170									189	258	335	382
160									152	215	281	323
150									127	179	237	276
140									112	156	204	233
130									103	141	179	201
120									89.6	132	167	185
110										40.2	71.4	83.8

ELECTRON DENSITY

PUERTO RICO 60 W 1 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	114	110	110	117	231	221	207	218	271	258
HMAX	335	344	360	369	356	350	352	347	356	382	374	375
SHMAX	2574	2584	2686	2914	2873	2627	1864	1361	1162	1207	722	962
KM												
390										1328		
380										1328	1191	1420
370				2643						1317	1188	1416
360			2430	2629	2790		2294		1500	1289	1156	1386
350		2362	2413	2581	2783	2643	2293	1786	1496	1245	1086	1324
340	2571	2359	2361	2497	2742	2626	2269	1778	1467	1182	982	1240
330	2566	2331	2269	2376	2662	2574	2211	1739	1413	1111	861	1119
320	2528	2263	2146	2227	2543	2487	2114	1669	1331	1016	716	975
310	2451	2161	1996	2032	2391	2362	1990	1566	1226	903	573	814
300	2331	2043	1831	1846	2199	2210	1838	1431	1096	781	432	625
290	2177	1907	1669	1650	1982	2011	1669	1283	939	655	240	417
280	1990	1752	1493	1446	1747	1786	1468	1119	781	529	83.8	219
270	1786	1588	1327	1260	1512	1578	1240	939	625	408		83.8
260	1578	1431	1184	1073	1291	1362	1050	735	446	298		21.7
250	1362	1283	1050	932	1111	1182	754	524	298	198		
240	1184	1111	917	814	946	982	417	310	179	122		
230	1004	975	814	724	794	807		143	102	63.8		
220	861	848	716	643	679	643			57.4	12.4		
210	729	729	634	579	582	519			18.0			
200	608	619	557	514	487	408						
190	516	524	477	446	410	323						
180	432	441	403	382	342	255						
170	368	378	335	323	286	203						
160	315	320	276	272	240	167						
150	267	276	227	232	202	140						
140	226	238	201	194	175	124						
130	196	216	190	176	157	115						
120	186	203	180	167	147	97.2						
110	49.6	40.2		71.4	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 2 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL					F			S				
HMIN	229	227	265	252	266	234	229	127	110	110	110	110
HMAX	310	346	386	338	392	375	331	285	279	301	307	315
SHMAX	640	857	694	502	569	555	420	548	1006	1637	2085	2336
KM												
400					716							
390			875		716							
380			873		708	679						
370			861		690	678						
360			837		657	666						
350		1004	801		616	643						
340		1003	754	875	568	608	661					
330		992	694	868	508	559	661					
320		971	616	842	439	508	651					2607
310	1265	939	519	794	362	451	626			1907	2396	2601
300	1240	898	403	724	286	389	586			1906	2384	2553
290	1164	849	286	608	209	329	532	794		1885	2329	2456
280	1035	778	161	477	112	268	462	791	1420	1828	2221	2309
270	854	688	60.0	323	44.9	205	380	774	1405	1732	2069	2118
260	643	573		112		135	286	735	1355	1612	1887	1882
250	389	432				77.6	179	679	1274	1446	1669	1640
240	127	286				40.2	90.5	608	1157	1274	1490	1404
230	12.4	83.8					12.4	516	1004	1096	1265	1191
220								403	814	917	1027	982
210								294	643	742	834	807
200								205	462	591	679	655
190								138	335	467	551	551
180								97.2	248	371	446	462
170								73.5	184	298	355	389
160								59.4	149	245	292	335
150								53.7	125	208	245	290
140								45.6	110	175	210	250
130								12.4	104	155	184	219
120									97.2	141	166	190
110									12.4	40.2	97.2	127

ELECTRON DENSITY

PUERTO RICO 60 W 2 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	112	110	116	112	239	205	186	223	257	232
HMAX	332	346	351	359	363	347	334	330	335	386	365	346
SHMAX	2513	2536	2893	2828	2854	2725	1742	1568	1292	907	748	684
KM												
390										1096		
380										1092		
370					2790					1068	1215	
360			2643	2643	2788					1022	1211	
350		2500	2643	2629	2758	2941				952	1179	1027
340	2430	2492	2623	2581	2690	2930	2680		1433	767	1114	1023
330	2430	2438	2571	2497	2584	2877	2675	2193	1431	784	1016	997
320	2405	2328	2485	2370	2445	2781	2629	2171	1413	491	889	946
310	2346	2177	2362	2210	2256	2636	2530	2105	1377	599	754	875
300	2245	1990	2210	2032	2053	2451	2379	1990	1320	508	591	784
290	2118	1803	2032	1826	1826	2214	2183	1838	1247	417	403	667
280	1960	1593	1826	1612	1601	1932	1907	1650	1161	327	219	551
270	1786	1411	1646	1411	1368	1669	1584	1446	1059	248	90.5	417
260	1593	1240	1446	1221	1127	1394	1191	1191	939	173	30.9	274
250	1411	1096	1260	1038	946	1162	608	939	807	112		135
240	1240	950	1084	907	807	939	49.6	661	691	63.7		56.5
230	1065	834	950	794	688	735		389	562	40.2		
220	917	735	834	698	591	585		170	432			
210	781	652	716	608	508	469		49.6	286			
200	667	580	616	524	432	382			143			
190	565	514	524	446	362	310			49.6			
180	477	446	446	375	298	254						
170	406	389	378	320	236	211						
160	351	340	325	272	189	176						
150	306	300	286	231	157	153						
140	266	266	250	201	141	135						
130	234	237	219	177	135	123						
120	210	224	205	167	128	114						
110	127	83.8		83.8								

ELECTRON DENSITY

PUERTO RICO 60 W 3 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S				
HMIN	263	268	255	228	190	229	232	174	116	110	110	110
HMAX	386	378	342	301	347	388	373	323	291	292	298	315
SHMAX	684	725	542	505	580	444	349	568	1190	1665	1544	2347
KM												
390	939					477						
380	936	1004				475	432					
370	917	1000				468	431					
360	879	980				455	426					
350	827	943	1050		508	436	411					
340	754	896	1049		507	414	391					
330	667	824	1024		504	382	364	735				
320	562	726	967		498	347	332	735				2571
310	462	608	861	1073	489	306	294	725				2566
300	353	477	716	1072	478	262	254	702	1583	2362	2396	2521
290	229	323	540	1047	464	219	211	667	1583	2360	2378	2430
280	112	161	362	978	449	175	170	623	1562	2312	2304	2294
270	49.6	26.3	161	875	431	135	123	560	1506	2187	2161	2105
260			49.6	735	409	101	83.8	485	1415	2007	1990	1882
250				508	379	68.6	55.8	408	1291	1762	1762	1646
240				219	343	44.9	32.2	318	1127	1501	1556	1420
230				44.9	292	3.1		226	960	1240	1341	1201
220					226			143	774	939	1096	1004
210					149			87.2	591	698	896	834
200					71.4			61.9	432	540	704	691
190					3.1			53.8	318	417	557	573
180								44.2	235	327	437	485
170									179	262	355	410
160									146	211	292	346
150									124	176	248	298
140									109	151	210	259
130									102	138	184	227
120									88.3	131	170	206
110										40.2	127	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 3 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	110	112	110	117	236	222	215	213	237	218
HMAX	321	335	349	360	359	342	350	350	354	360	349	340
SHMAX	2388	2547	2712	2725	2825	2331	1739	1558	1233	1058	879	800
KM												
360				2500	2643				1583	1328		
350			2500	2484	2630	2536	2294	2000	1581	1317	1367	
340		2536	2486	2437	2586	2535	2274	1984	1557	1283	1354	1119
330	2465	2530	2437	2357	2510	2504	2215	1935	1506	1225	1309	1109
320	2465	2487	2342	2240	2402	2430	2109	1846	1425	1150	1229	1078
310	2441	2389	2227	2096	2260	2306	1969	1734	1316	1050	1119	1024
300	2375	2244	2080	1925	2087	2142	1803	1588	1184	932	975	952
290	2264	2080	1907	1735	1887	1948	1601	1425	1035	807	807	854
280	2112	1887	1719	1556	1669	1739	1383	1221	889	679	625	742
270	1928	1688	1537	1376	1468	1534	1143	1004	716	540	446	619
260	1747	1501	1359	1182	1260	1321	896	794	557	403	251	477
250	1537	1308	1191	1019	1080	1119	625	573	375	262	112	323
240	1341	1127	1035	875	932	917	286	335	209	143	30.9	170
230	1143	975	903	764	781	735		143	97.2	79.7		77.6
220	982	854	794	665	667	585			44.9	43.3		21.7
210	834	754	698	582	557	477						
200	691	657	608	508	467	380						
190	585	573	532	439	389	310						
180	492	495	459	378	325	249						
170	423	429	395	320	276	207						
160	362	362	341	272	232	173						
150	314	310	298	229	198	146						
140	270	274	259	194	171	129						
130	234	237	226	175	156	119						
120	211	211	206	165	145	97.2						
110	161	161	127		83.8							

ELECTRON DENSITY

PUERTO RICO 60 W 4 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S				
HMIN	228	235	215	218	237	257	274	185	109	109	110	108
HMAX	365	313	319	307	306	414	404	296	289	307	321	323
SHMAX	766	521	472	386	230	359	318	435	1185	1641	2354	2506
KM												
420						348						
410						348	368					
400						345	368					
390						339	364					
380						329	355					
370	1004					317	342					
360	1002					303	324					
350	986					286	302					
340	952					265	274					
330	903					240	243				2500	2536
320	834	1038	754			216	205				2500	2534
310	745	1037	747	698	332	186	170			2032	2476	2505
300	643	1008	720	689	528	157	134	814		2023	2411	2439
290	529	943	673	660	499	127	92.8	808	1556	1982	2306	2318
280	417	844	608	613	446	93.9	49.6	776	1541	1907	2161	2175
270	298	696	524	540	362	60.0		709	1492	1797	1982	2011
260	179	524	427	457	262	19.3		619	1408	1669	1766	1806
250	97.2	286	327	323	127			498	1298	1493	1556	1612
240	56.5	60.0	229	209	40.2			362	1143	1324	1341	1411
230	12.4		127	90.5				219	993	1159	1143	1201
220			46.5	21.7				107	814	975	950	1004
210								57.6	643	794	794	848
200								36.5	477	631	655	704
190								20.8	353	508	529	596
180									255	398	427	498
170									194	316	348	417
160									155	258	291	355
150									131	219	248	302
140									116	187	213	266
130									106	166	185	235
120									98.0	151	169	211
110									12.4	97.2	71.4	143

ELECTRON DENSITY

PUERTO RICO 60 W 4 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	107	110	110	113	229	237	213	202	238	269
HMAX	331	338	351	353	338	347	361	347	347	353	386	372
SHMAX	2599	2697	2919	2766	2171	2256	1773	1392	1235	1030	994	734
KM												
390											1240	
380											1236	1215
370							2161				1214	1215
360			2643	2571			2160			1278	1172	1192
350			2643	2570		2294	2142	1958	1612	1276	1109	1135
340	2680	2790	2623	2541	2430	2286	2093	1929	1605	1258	1027	1041
330	2679	2774	2571	2476	2409	2248	2011	1889	1571	1210	917	928
320	2650	2711	2485	2373	2320	2178	1907	1815	1497	1149	807	781
310	2571	2600	2362	2244	2089	2067	1769	1704	1404	1068	679	625
300	2430	2430	2210	2069	1925	1934	1604	1556	1291	971	562	432
290	2256	2227	2032	1887	1752	1786	1411	1383	1157	854	427	240
280	2053	1982	1846	1702	1574	1631	1221	1167	1004	742	294	97.2
270	1846	1739	1646	1519	1383	1446	982	939	848	619	189	12.4
260	1623	1512	1446	1324	1208	1274	716	679	661	498	107	
250	1404	1291	1260	1159	1035	1065	417	389	477	371	60.0	
240	1208	1080	1080	1004	889	889	143	112	298	251	12.4	
230	1035	917	946	875	764	716	12.4		152	152		
220	889	784	824	754	652	562			60.0	83.8		
210	768	679	726	652	557	446				44.9		
200	671	591	634	565	477	353						
190	573	521	549	485	396	274						
180	492	453	469	410	335	219						
170	423	398	403	351	280	172						
160	362	346	346	300	233	141						
150	310	303	302	259	196	119						
140	276	266	262	225	172	109						
130	246	235	229	198	157	104						
120	221	211	209	186	149	98.8						
110	127	112	161	40.2	40.2							

ELECTRON DENSITY

PUERTO RICO 60 W 5 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	272	268	239	220	197	216	274	215	117	113	109	105
HMAX	380	352	326	306	320	346	380	309	301	306	308	329
SHMAX	746	578	640	608	405	230	216	379	1203	1839	2162	2675
KM												
380	1191						298					
370	1176						295					
360	1130	1096					286					
350	1057	1095				280	274					
340	950	1070				279	258					
330	820	1004	1167			274	235					2753
320	667	903	1160		484	265	205					2735
310	508	768	1121	1027	482	249	172	698	1500	2161	2571	2672
300	335	608	1050	1023	473	230	135	686	1500	2154	2554	2565
290	161	417	939	997	458	210	97.2	657	1484	2115	2485	2413
280	60.0	198	794	948	437	186	54.8	601	1440	2041	2354	2227
270		49.6	625	882	414	163		519	1374	1929	2180	1990
260			417	781	381	136		427	1276	1786	1957	1762
250			161	643	340	112		298	1155	1601	1715	1528
240			12.4	477	291	83.8		189	1004	1394	1474	1301
230				219	235	60.0		97.2	834	1143	1208	1080
220				12.4	173	26.3		43.3	655	896	982	917
210					104				477	698	794	781
200					30.9				353	540	643	667
190									262	427	529	573
180									192	335	427	485
170									150	262	351	417
160									123	215	295	356
150									107	179	251	306
140									96.5	156	216	269
130									89.9	141	187	235
120									79.7	132	171	211
110											112	184

ELECTRON DENSITY

PUERTO RICO 60 W 5 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	110	110	110	110	219	218	234	232	258	240
HMAX	329	350	348	356	363	365	371	358	358	377	373	337
SHMAX	2562	2968	2950	2856	2807	2738	1954	1429	1236	1200	1108	972
KM												
380							2096			1500	1654	
370					2536	2396	2096			1495	1653	
360				2643	2534	2393	2081	1616	1669	1467	1625	
350		2827	2865	2637	2511	2371	2041	1806	1659	1416	1564	
340		2808	2851	2601	2460	2326	1976	1766	1618	1341	1466	1697
330	2716	2748	2794	2532	2379	2260	1885	1696	1545	1240	1341	1686
320	2696	2650	2690	2430	2264	2171	1773	1589	1433	1119	1175	1632
310	2625	2501	2554	2294	2118	2055	1636	1480	1303	975	960	1531
300	2493	2313	2362	2124	1960	1921	1476	1308	1159	814	735	1394
290	2328	2118	2139	1942	1786	1769	1308	1127	990	643	508	1191
280	2118	1882	1928	1747	1593	1604	1143	946	794	487	262	917
270	1907	1646	1692	1556	1404	1429	975	774	608	348	104	625
260	1669	1425	1490	1359	1224	1240	794	573	417	209	26.3	286
250	1446	1224	1281	1143	1050	1096	608	389	229	104		90.5
240	1240	1065	1096	975	903	917	417	198	90.5	49.6		
230	1027	917	932	834	766	766	161	83.8				
220	861	804	807	716	652	631	12.4	21.7				
210	729	707	698	616	549	508						
200	619	616	608	524	467	408						
190	532	540	524	446	395	327						
180	459	465	446	382	330	262						
170	400	400	389	323	281	211						
160	346	351	335	272	240	176						
150	302	306	290	233	202	148						
140	262	266	253	198	172	130						
130	225	234	224	177	156	120						
120	206	209	204	166	145	107						
110	12.4	40.2	49.6	40.2	12.4	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 6 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	237	237	213	195	201	251	297	219	115	110	110	110
HMAX	321	321	297	277	338	388	405	291	278	298	308	311
SHMAX	696	802	622	295	196	158	146	306	968	1564	2045	2135
KM												
410							189					
400							188					
390						173	186					
380						172	180					
370						169	172					
360						165	163					
350						158	149					
340					219	149	132					
330	1446	1446			218	140	114					
320	1446	1446			215	128	89.2					2362
310	1407	1422			209	114	64.6				2362	2361
300	1298	1359	1143		200	98.8	30.9	679		1756	2346	2336
290	1143	1251	1135		189	82.3		679		1747	2282	2260
280	917	1111	1096	540	177	66.5		662	1446	1711	2172	2146
270	679	896	1027	536	161	49.6		614	1432	1640	2032	1996
260	417	661	903	517	141	29.8		540	1376	1543	1826	1806
250	161	389	754	484	120			432	1274	1420	1623	1593
240	40.2	83.8	573	429	99.3			286	1127	1283	1363	1383
230			362	362	76.4			112	960	1127	1162	1167
220			143	278	53.8			12.4	774	960	939	975
210				179	36.2				573	807	774	807
200				60.0					432	643	631	667
190									318	508	519	551
180									240	398	432	467
170									184	316	368	396
160									146	262	310	341
150									124	215	270	295
140									110	185	237	255
130									103	161	209	227
120									88.3	147	188	205
110										12.4	12.4	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 6 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	111	108	107	109	110	112	227	234	222	225	263	237
HMAX	326	338	351	358	365	348	360	373	336	356	367	342
SHMAX	2353	2504	2664	2673	2588	2152	1618	1760	1155	1024	968	838
KM												
380								2000				
370					2161			1999			1446	
360			2396	2294	2158		2000	1981		1420	1439	
350			2396	2286	2137	2161	1985	1941		1415	1405	1420
340		2430	2378	2256	2095	2151	1940	1876	1640	1385	1341	1419
330	2294	2418	2329	2203	2032	2111	1856	1601	1634	1324	1240	1391
320	2288	2370	2242	2124	1936	2040	1747	1692	1599	1240	1127	1323
310	2253	2280	2135	2032	1822	1929	1612	1556	1528	1131	960	1226
300	2187	2146	2000	1907	1704	1799	1462	1383	1433	990	781	1080
290	2079	1996	1838	1760	1570	1652	1281	1201	1298	834	591	896
280	1948	1806	1669	1620	1431	1493	1096	1004	1157	679	362	679
270	1801	1612	1501	1462	1283	1324	896	754	982	492	143	446
260	1631	1425	1341	1291	1155	1159	679	508	774	310		229
250	1462	1240	1175	1111	1019	975	417	240	540	170		90.5
240	1291	1065	1027	960	889	807	179	71.4	310	79.7		30.9
230	1096	917	896	834	774	661	40.2		112	33.2		
220	939	804	781	726	679	540						
210	794	704	670	619	591	439						
200	667	616	582	532	508	362						
190	565	540	500	454	432	300						
180	477	471	429	389	362	246						
170	406	412	367	331	304	207						
160	351	362	318	286	254	173						
150	305	314	276	245	212	148						
140	262	272	240	203	179	129						
130	229	235	207	177	158	119						
120	208	210	188	166	147	107						
110		143	143	71.4	60.0							

ELECTRON DENSITY

PUERTO RICO 60 W 7 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S		A	A	A
HMIN	235	232	219	202	203	281	273	149	110	109	112	111
HMAX	315	304	297	284	326	435	389	307	289	306	309	339
SHMAX	551	503	466	310	259	250	178	502	1049	1435	1978	2285
KM												
440						229						
430						229						
420						227						
410						224						
400						219						
390						212	240					
380						205	238					
370						197	233					
360						185	223					
350						171	208					
340						155	190					
330					298	136	168					
320	1119				297	117	141					
310	1113	1073			293	95.0	112	661		2032	2430	2753
300	1065	1069	896		286	71.4	83.8	658		2023	2408	2731
290	960	1031	889	608	276	47.2	57.4	643	1367	1971	2328	2656
280	834	952	855	606	262		30.9	615	1355	1806	2190	2524
270	679	834	799	587	245			577	1313	1719	2007	2339
260	492	661	704	549	225			524	1240	1534	1762	2109
250	286	446	573	485	201			462	1131	1321	1528	1816
240	83.8	143	417	398	173			382	1004	1096	1265	1519
230			198	294	139			294	854	896	1004	1208
220			49.6	179	101			212	691	735	814	960
210				65.7	54.8			149	540	596	661	735
200								104	417	487	551	596
190								77.6	318	398	462	492
180								63.4	246	329	389	423
170								56.4	195	272	330	367
160								51.2	158	223	286	318
150								12.4	133	189	237	279
140									116	161	202	246
130									106	143	181	217
120									97.2	134	166	200
110									40.2	60.8		

ELECTRON DENSITY

PUERTO RICO 60 W 7 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			B	b	B							
HMIN	106	103		110		114	230	242	233	234	244	263
HMAX	324	339		368		364	383	373	359	356	378	363
SHMAX	2506	2660		2543		2275	1930	1414	1313	1058	1105	923
KM												
390							2000					
380							1999	1816			1446	
370				2193		2096	1983	1814			1433	1528
360				2184		2094	1945	1790	1727	1528	1406	1526
350				2138		2070	1882	1735	1715	1522	1348	1495
340		2643		2062		2014	1802	1646	1676	1485	1258	1425
330	2536	2625		1969		1925	1701	1531	1609	1408	1154	1312
320	2533	2560		1858		1819	1581	1394	1507	1303	1027	1171
310	2500	2442		1734		1704	1446	1240	1381	1171	875	990
300	2430	2294		1588		1570	1291	1073	1240	1035	729	774
290	2306	2118		1446		1431	1127	875	1073	861	573	508
280	2161	1907		1298		1283	975	661	875	679	403	262
270	1990	1688		1131		1143	794	417	679	477	240	71.4
260	1746	1468		1004		990	591	229	417	286	112	
250	1593	1240		896		848	389	83.8	219	155	46.5	
240	1383	1065		802		726	179		60.0	54.8		
230	1182	903		724		616	12.4					
220	1004	768		650		524						
210	834	670		587		439						
200	691	587		514		362						
190	562	529		439		298						
180	469	481		368		246						
170	400	437		310		203						
160	346	393		262		171						
150	302	348		219		148						
140	262	306		190		131						
130	229	269		174		120						
120	210	238		165		102						
110	179	219		40.2								

ELECTRON DENSITY

PUERTO RICO 60 W 8 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S				A
HMIN	248	219	207	211	230	311	275	103	114	112	109	101
HMAX	343	313	302	339	362	464	383	298	293	310	301	310
SHMAX	954	731	545	432	296	292	300	639	1136	1873	1970	2366
KM												
470						323						
460						322						
450						319						
440						311						
430						298						
420						284						
410						264						
400						240						
390						213	432					
380						182	431					
370					335	152	425					
360					335	124	410					
350	1556				333	94.5	386					
340	1554			524	326	69.5	358					
330	1523			521	316	51.3	315					
320	1455	1316		510	302	29.8	267					
310	1341	1314	875	492	287		214			2227	2571	2716
300	1208	1280	875	465	267		155	854	1556	2208	2571	2691
290	1035	1201	862	432	240		90.5	849	1554	2152	2533	2616
280	834	1096	829	389	209		43.3	825	1521	2066	2430	2487
270	573	946	774	344	170			782	1446	1738	2256	2313
260	286	768	707	295	127			723	1329	1762	2032	2083
250	49.6	557	608	249	88.3			643	1182	1434	1756	1834
240		310	492	192	49.6			551	1019	1316	1446	1556
230		112	348	138				446	848	1027	1143	1265
220		12.4	198	71.4				335	661	794	917	1027
210			40.2					248	508	619	716	834
200								173	380	477	562	679
190								124	286	375	462	562
180								95.0	219	304	389	467
170								76.1	175	246	330	395
160								64.2	143	203	281	335
150								57.2	122	171	240	290
140								52.4	108	150	207	248
130								44.9	100	138	183	217
120								29.8	85.7	130	170	195
110								12.4			127	179

ELECTRON DENSITY

PUERTO RICO 60 W 8 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	108	109	110	110	108	111	229	232	220	219	238	239
HMAX	322	330	358	358	368	360	370	348	339	351	352	349
SHMAX	2526	2556	2637	2448	2467	2180	1701	1474	1178	995	792	719
KM												
370					2000		2000					
360			2128	2064	1994	2000	1987			1716	1119	
350			2122	2057	1969	1988	1949	2064		1315	1119	1050
340			2096	2028	1924	1952	1881	2052	1640	1301	1104	1041
330	2643	2430	2049	1978	1854	1889	1794	2007	1628	1262	1069	1013
320	2642	2415	1977	1907	1776	1803	1680	1927	1587	1195	1011	960
310	2615	2370	1897	1806	1678	1701	1540	1810	1514	1115	934	892
300	2549	2294	1796	1692	1556	1570	1376	1669	1420	1004	834	804
290	2443	2183	1669	1556	1420	1431	1191	1468	1283	886	726	691
280	2294	2046	1542	1431	1291	1283	1004	1240	1127	754	596	562
270	2105	1889	1401	1283	1175	1143	754	960	960	608	446	432
260	1887	1708	1265	1131	1050	990	477	608	754	462	262	262
250	1669	1519	1143	1004	928	848	262	286	508	310	112	97.2
240	1420	1341	1027	886	814	716	97.2	83.8	262	170	26.3	12.4
230	1191	1143	907	786	716	608	12.4		83.8	77.6		
220	1004	990	810	701	643	516				12.4		
210	820	834	716	629	573	439						
200	667	691	634	560	508	375						
190	540	573	540	492	446	316						
180	454	477	454	425	382	267						
170	384	406	383	355	320	223						
160	335	351	330	292	267	186						
150	286	306	281	245	223	163						
140	236	266	240	209	186	143						
130	204	234	202	182	161	124						
120	190	210	187	167	147	112						
110	179	161	40.2	49.6	112							

ELECTRON DENSITY

PUERTO RICO 60 W 9 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		S						S				
HMIN	232	239	239	219	210	203	253	209	110	110	106	107
HMAX	369	334	333	298	355	348	375	307	286	300	306	315
SHMAX	744	455	421	275	391	269	195	391	1017	1621	1995	2358
KM												
380							240					
370	875						240					
360	870				403		236					
350	855				403	286	230					
340	827	814	754		399	285	220					
330	794	811	753		393	281	206					
320	742	787	735		383	275	190					2643
310	679	735	690		372	266	170	661			2413	2637
300	608	661	625	573	362	254	146	657		2000	2403	2590
290	519	562	529	566	340	241	119	637	1367	1979	2344	2495
280	427	446	427	536	310	223	93.9	608	1361	1915	2220	2345
270	335	323	318	483	274	201	65.7	553	1326	1798	2050	2161
260	240	198	189	408	229	173	40.2	477	1258	1652	1834	1932
250	135	83.8	83.8	310	179	141		380	1154	1483	1601	1692
240	60.0	12.4	12.4	189	132	112		251	1027	1301	1368	1446
230				77.6	83.8	77.6		135	889	1073	1096	1191
220				12.4	49.6	53.1		67.6	716	875	896	960
210					1.3	28.3		12.4	557	691	729	794
200									417	540	596	643
190									310	432	500	529
180									233	344	425	439
170									179	268	356	373
160									143	219	305	320
150									122	179	259	278
140									110	153	222	243
130									104	140	189	212
120								98.8	133	172	192	
110								12.4	60.0	162	161	

ELECTRON DENSITY

PUERTO RICO 60 W 9 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A	B									
HMIN	110	110	109	108	108	109	219	240	224	233	250	258
HMAX	325	348	352	356	364	361	356	348	355	379	377	363
SHMAX	2457	2626	2596	2516	2512	2309	1486	1153	1063	937	757	808
KM												
380										1119	1143	
370					2064	2064				1112	1136	1290
360			2396	2161	2062	2063	1907		1316	1087	1101	1289
350		2500	2395	2156	2044	2050	1901	1697	1313	1044	1035	1264
340		2488	2372	2130	2007	2016	1867	1687	1295	982	939	1209
330	2500	2438	2317	2081	1950	1959	1802	1643	1259	909	834	1119
320	2496	2336	2216	2000	1869	1876	1701	1565	1201	824	704	1004
310	2458	2214	2096	1895	1774	1774	1581	1446	1135	726	573	854
300	2382	2050	1954	1773	1656	1654	1431	1308	1038	619	432	679
290	2264	1872	1786	1640	1531	1515	1260	1127	917	519	286	508
280	2112	1688	1612	1493	1401	1371	1065	917	781	408	161	286
270	1928	1490	1431	1341	1265	1226	834	698	643	310	83.8	112
260	1708	1308	1260	1212	1127	1080	573	417	492	209	47.2	26.3
250	1490	1111	1111	1080	993	917	362	198	335	119	1.3	
240	1301	960	960	946	875	781	198	12.4	161	54.8		
230	1096	834	834	834	768	655	77.6		60.0			
220	932	735	726	726	672	540	12.4					
210	794	650	634	634	591	454						
200	679	580	549	549	508	382						
190	573	514	469	477	439	320						
180	485	453	403	406	373	267						
170	417	395	342	348	315	227						
160	366	335	291	298	270	192						
150	310	294	245	258	231	163						
140	266	256	213	219	198	139						
130	232	222	195	194	176	124						
120	210	205	184	179	157	115						
110	143	49.6	83.8	112	97.2	49.6						

ELECTRON DENSITY

PUERTO RICO 60 W 10 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	A							S				
HMIN	221	226	227	222	201	196	277	102	111	108	108	108
HMAX	333	305	306	283	333	372	401	302	282	313	309	319
SHMAX	803	551	501	313	328	282	203	549	1018	1647	2063	2457
KM												
410							262					
400							262					
390							260					
380						274	253					
370						274	241					
360						272	224					
350						267	205					
340	1367				375	258	182					
330	1365				375	246	155					
320	1335				371	232	127			2032		2571
310	1268	1143	982		364	217	97.2	716		2030	2430	2556
300	1164	1137	977		351	198	71.4	716		2003	2409	2502
290	1019	1089	941	754	338	179	47.7	704	1500	1941	2337	2408
280	814	1004	875	753	318	159	12.4	675	1499	1841	2205	2294
270	608	861	774	726	292	137		628	1466	1721	2032	2105
260	389	698	643	665	262	117		567	1379	1556	1826	1907
250	189	477	446	562	226	97.2		492	1265	1376	1584	1692
240	97.2	219	219	403	184	80.7		410	1096	1182	1341	1468
230	49.6	49.6	40.2	179	138	65.7		329	917	990	1119	1240
220					88.3	51.1		257	735	820	903	990
210					47.2	40.2		198	557	667	735	814
200						12.4		154	417	551	596	679
190								121	302	454	498	562
180								95.5	226	375	417	469
170								80.4	179	310	356	400
160								70.3	146	258	306	346
150								64.6	126	215	266	302
140								57.0	112	185	234	266
130								43.7	106	166	206	232
120								28.7	100	152	187	211
110								12.4		112	127	179

ELECTRON DENSITY

PUERTO RICO 60 W 10 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	108	109	108	108	112	115	239	229	233	229	246	244
HMAX	332	337	363	362	381	368	366	357	351	373	383	351
SHMAX	2511	2398	2727	2520	2602	2339	1513	1377	1161	1190	1071	826
KM												
390					2032						1341	
380					2032					1420	1340	
370			2260	2096	2021	2032	1938			1419	1325	
360			2259	2095	1993	2025	1932	1846	1528	1403	1289	1341
350			2240	2080	1948	1999	1897	1838	1528	1467	1233	1341
340	2430	2294	2197	2043	1882	1952	1831	1799	1513	1305	1158	1320
330	2430	2285	2124	1973	1802	1881	1732	1727	1475	1230	1061	1264
320	2415	2241	2032	1896	1701	1794	1604	1618	1409	1133	939	1172
310	2346	2161	1918	1786	1589	1580	1446	1478	1330	1019	807	1050
300	2245	2032	1786	1669	1460	1556	1274	1321	1216	889	661	903
290	2118	1889	1652	1540	1327	1420	1096	1143	1034	754	508	729
280	1960	1719	1501	1394	1184	1283	896	939	932	608	348	524
270	1786	1556	1356	1255	1050	1127	643	716	754	462	198	310
260	1612	1376	1191	1127	928	990	405	477	573	310	90.5	135
250	1429	1212	1050	993	818	848	179	240	310	179	40.2	49.6
240	1240	1065	928	875	732	729	12.4	97.2	97.2	83.8		
230	1050	917	814	774	655	619		12.4		12.4		
220	903	804	726	667	591	529						
210	768	701	643	608	540	446						
200	655	616	573	540	487	382						
190	551	540	502	477	429	316						
180	469	472	439	412	368	267						
170	400	417	383	351	305	226						
160	346	366	330	302	258	190						
150	298	323	286	259	219	163						
140	262	282	250	222	190	143						
130	232	248	217	196	171	133						
120	212	227	204	183	146	83.8						
110	161	60.0	179	143								

ELECTRON DENSITY

PUERTO RICO 60 W 11 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S		A		
HMIN	234	229	231	215	245	283	221	206	110	110	109	109
HMAX	332	321	301	312	389	440	413	317	290	304	316	319
SHMAX	721	563	370	311	364	309	314	481	1170	1725	2158	2348
KM												
440						323						
430						321						
420						316	348					
410						307	348					
400						295	343					
390					389	276	332					
380					387	258	315					
370					382	235	293					
360					372	210	265					
350					358	182	237					
340	1215				342	152	207					
330	1215	982			322	124	176					
320	1192	982		492	295	97.2	146	774			2396	2430
310	1135	967	854	492	262	71.4	119	770		2096	2388	2416
300	1050	926	854	483	226	51.3	97.2	748		2092	2342	2367
290	932	859	829	462	187	28.3	79.7	716	1528	2052	2245	2281
280	781	754	770	432	148		66.4	657	1511	1959	2112	2161
270	608	631	667	389	107		55.3	573	1461	1839	1942	2014
260	417	477	508	341	63.8		46.9	462	1370	1669	1739	1826
250	198	298	310	270	33.2		40.2	323	1253	1468	1512	1631
240	60.0	112	90.5	209			26.3	198	1111	1260	1291	1425
230		12.4		127			12.4	117	946	1050	1080	1216
220				49.6				63.8	774	854	875	982
210								26.3	608	679	716	794
200									457	540	585	643
190									335	437	487	529
180									255	344	412	446
170									198	280	351	383
160									161	229	302	331
150									132	192	259	290
140									120	165	226	256
130									112	152	201	227
120									101	140	186	208
110									12.4	40.2	71.4	83.8

ELECTRON DENSITY

PUERTO RICO 60 W 11 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL					A	A						
HMIN	109	110	112	110	111	110	255	250	230	229	250	270
HMAX	334	354	355	355	369	386	387	358	371	361	378	368
SHMAX	2511	2758	2762	2441	2297	2396	1569	1179	1345	1219	1080	900
KM												
390						1846	1816					
380						1843	1810		1669		1420	
370					1876	1827	1782		1668	1528	1412	1420
360		2500	2396	2032	1868	1796	1733	1756	1654	1528	1382	1410
350		2498	2393	2029	1842	1750	1659	1750	1617	1514	1326	1369
340	2396	2469	2366	2009	1797	1690	1565	1710	1556	1479	1248	1298
330	2393	2408	2314	1968	1723	1612	1446	1623	1465	1416	1153	1197
320	2361	2316	2227	1907	1638	1526	1312	1507	1362	1341	1027	1065
310	2294	2187	2125	1814	1534	1423	1159	1371	1224	1240	875	889
300	2183	2032	2000	1711	1423	1308	990	1201	1065	1119	716	679
290	2046	1855	1846	1593	1308	1201	814	1004	875	975	557	462
280	1889	1669	1685	1460	1184	1096	591	754	679	814	389	198
270	1708	1465	1524	1341	1061	982	362	477	477	625	209	12.4
260	1537	1260	1359	1196	939	875	97.2	179	274	417	77.6	
250	1341	1096	1198	1050	834	768		12.4	127	240		
240	1175	932	1050	928	732	679			60.0	77.6		
230	1019	807	903	814	650	591			3.1	12.4		
220	886	707	768	726	585	516						
210	768	629	655	643	529	439						
200	661	567	557	567	477	368						
190	573	513	485	500	423	310						
180	500	464	429	435	367	251						
170	435	421	371	378	305	207						
160	378	377	332	325	254	171						
150	331	335	296	282	212	146						
140	286	294	265	246	182	130						
130	253	251	237	219	170	122						
120	229	227	220	204	161	115						
110	112	40.2		40.2		40.2						

ELECTRON DENSITY

PUERTO RICO 60 W 12 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S				
HMIN	277	234	201	222	305	268	228	106	112	110	109	107
HMAX	381	317	293	395	458	401	340	311	290	309	317	353
SHMAX	840	742	440	501	418	418	356	772	1059	1785	2152	2775
KM												
460					461							
450					460							
440					452							
430					438							
420					421							
410					395	508						
400				461	365	508						
390	1265			461	331	504						
380	1265			457	290	493						
370	1249			449	249	475						
360	1205			438	203	453						2396
350	1133			423	161	424						2395
340	1038			401	119	380	492					2374
330	917			377	81.3	330	488					2329
320	774	1393		351	54.8	274	477	875			2260	2257
310	608	1384		323	21.7	219	457	875		1907	2252	2161
300	417	1337	794	289		161	430	869		1895	2210	2032
290	240	1251	792	256		92.8	393	852	1500	1855	2128	1889
280	60.0	1127	771	222		54.8	341	825	1482	1786	2016	1719
270		939	722	187		12.4	280	794	1425	1679	1661	1556
260		661	643	150			212	742	1330	1556	1688	1376
250		362	551	112			138	670	1201	1416	1512	1216
240		83.8	457	71.4			75.6	582	1019	1269	1321	1084
230			335	42.5			21.7	487	834	1127	1143	960
220			198					375	643	960	946	834
210			77.6					262	462	794	774	716
200								179	327	625	631	616
190								123	240	477	519	524
180								92.8	184	371	432	446
170								74.5	147	298	362	378
160								63.8	124	245	310	325
150								58.1	111	205	266	286
140								54.8	106	175	231	248
130								51.6	102	157	204	210
120								40.2	97.2	147	184	191
110								12.4		40.2	97.2	161

ELECTRON DENSITY

PUERTO RICO 60 W 12 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		8				A	A					
HMIN	107	109	113	109	115	116	110	254	251	245	251	259
HMAX	346	356	371	372	384	387	369	391	371	366	387	380
SHMAX	2779	2769	2843	2757	2692	2506	1718	1690	1315	1132	1190	1055
KM												
400								2000				
390					2064	1938		2000			1393	
380			2396	2193	2062	1934		1985	1727		1389	1420
370			2396	2193	2048	1916	1786	1944	1726	1528	1368	1409
360		2465	2380	2179	2017	1883	1775	1877	1711	1523	1330	1377
350	2607	2460	2338	2145	1970	1835	1739	1786	1668	1495	1274	1321
340	2601	2427	2265	2090	1907	1770	1676	1669	1600	1440	1200	1254
330	2563	2365	2170	2011	1820	1692	1576	1524	1501	1360	1115	1162
320	2491	2267	2045	1907	1722	1597	1459	1359	1381	1251	1004	1019
310	2381	2132	1907	1797	1612	1490	1329	1162	1240	1119	861	834
300	2244	1985	1742	1669	1495	1376	1182	960	1073	960	716	643
290	2069	1820	1588	1528	1368	1263	1038	716	854	794	573	446
280	1887	1650	1411	1394	1240	1162	903	446	608	608	417	262
270	1688	1478	1240	1255	1096	1050	768	219	362	389	251	90.5
260	1483	1312	1080	1127	971	939	643	65.7	112	179	112	12.4
250	1281	1143	950	1004	854	820	519			49.6		
240	1040	993	844	886	745	707	427					
230	917	865	754	786	657	608	344					
220	784	754	685	698	580	516	262					
210	679	643	615	608	514	427	186					
200	591	557	549	532	453	348	122					
190	516	483	477	459	398	286	83.8					
180	453	417	412	395	346	236	71.4					
170	395	366	356	340	295	192	66.0					
160	341	318	305	296	251	161	60.6					
150	291	272	262	259	219	138	58.0					
140	251	235	227	226	194	125	55.8					
130	221	215	210	198	173	118	53.6					
120	207	202	192	185	143	112	51.4					
110	161	71.4		112			12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 13 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL								S				A
HMIN	248	256	228	200	224	275	286	108	110	109	108	110
HMAX	362	343	317	331	356	428	408	299	303	316	316	329
SHMAX	889	664	651	644	298	279	255	634	1217	1959	2128	2426
KM												
430						296						
420						297						
410						292	323					
400						283	321					
390						270	315					
380						256	305					
370	1290					238	289					
360	1290				362	217	269					
350	1274	1167			361	194	245					
340	1234	1165		643	355	169	215					
330	1173	1140		643	344	141	175					2500
320	1096	1080	1143	640	328	117	139			2227	2536	2485
310	960	993	1131	633	307	91.9	97.2		1526	2219	2525	2432
300	794	875	1089	621	280	67.0	62.9	774	1526	2174	2461	2341
290	625	729	1019	604	250	49.6	23.5	769	1502	2087	2335	2205
280	446	540	907	583	215	20.3		751	1446	1976	2161	2032
270	262	286	768	557	175			720	1359	1806	1948	1846
260	97.2	71.4	591	527	139			674	1251	1612	1698	1646
250	21.7		375	492	97.2			619	1096	1404	1446	1425
240			143	451	62.9			547	932	1201	1208	1208
230			26.3	400	34.6			457	754	982	982	1050
220				327				362	591	781	794	889
210				209				270	457	625	643	729
200				12.4				198	353	508	532	596
190								148	270	408	446	487
180								112	205	335	378	403
170								90.5	161	276	320	341
160								77.1	130	232	272	286
150								68.3	113	195	232	240
140								61.9	107	173	198	209
130								53.9	103	157	178	194
120								44.9	98.1	147	168	184
110								12.4	12.4	97.2	127	40.2

ELECTRON DENSITY

PUERTO RICO 60 W 13 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL		B				A	A					
HMIN	110	110	110	110	110	112	118	235	221	260	254	238
HMAX	353	354	364	373	371	384	367	361	381	384	373	353
SHMAX	2910	2701	2855	2833	2581	2473	1993	1321	1164	905	885	788
KM												
390						1969			1316	1252		
380				2260	2128	1967			1315	1251	1215	
370			2465	2259	2128	1953	1938	1640	1305	1229	1214	
360	2500	2430	2463	2242	2116	1923	1932	1640	1279	1182	1197	1143
350	2499	2428	2439	2205	2064	1877	1907	1626	1234	1111	1157	1142
340	2479	2401	2389	2145	2032	1815	1861	1589	1173	1016	1096	1124
330	2432	2343	2312	2064	1946	1732	1794	1524	1096	903	1012	1084
320	2360	2245	2205	1969	1856	1638	1698	1446	993	768	903	1019
310	2257	2122	2075	1854	1751	1531	1589	1341	686	625	768	934
300	2132	1985	1922	1721	1626	1407	1460	1212	768	477	631	824
290	1985	1820	1766	1572	1487	1278	1312	1050	643	435	492	691
280	1820	1652	1574	1431	1341	1155	1171	889	519	179	362	557
270	1652	1483	1376	1283	1198	1035	1019	698	389	77.6	198	389
260	1443	1308	1182	1131	1050	896	854	508	262		60.0	219
250	1308	1111	1019	993	917	774	679	262	161			90.5
240	1131	975	875	875	794	670	529	83.8	90.5			26.3
230	990	848	754	770	679	573	403		47.2			
220	865	735	670	679	594	492	296					
210	754	643	594	599	516	423	219					
200	652	560	535	524	453	355	170					
190	551	489	477	459	395	298	134					
180	462	432	427	400	341	246	108					
170	395	384	380	348	298	203	89.8					
160	341	340	335	306	259	167	77.6					
150	294	281	294	269	226	142	69.7					
140	251	237	259	233	198	127	65.5					
130	219	213	222	201	176	119	61.3					
120	206	198	204	184	161	112	49.6					
110	60.0	12.4	12.4	40.2	12.4							

ELECTRON DENSITY

PUERTO RICO 60 W 14 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL								S				
HMIN	256	253	240	236	249	248	305	108	110	110	107	107
HMAX	347	329	329	331	405	381	441	295	297	314	330	337
SHMAX	663	559	505	382	465	367	403	722	1220	1715	2248	2619
KM												
450							477					
440							477					
430							473					
420							463					
410					508		446					
400					507		424					
390					501	446	395					
380					489	446	358					
370					470	443	315					
360					446	433	267					
350	1191				417	417	219					
340	1182			625	377	394	170					2571
330	1139	1096	794	625	335	365	112				2227	2563
320	1059	1082	788	616	291	331	67.6			1816	2212	2519
310	946	1033	767	589	245	290	33.2			1813	2166	2440
300	794	950	732	553	198	245		1004	1446	1789	2091	2318
290	625	834	684	495	149	192		1001	1441	1738	1982	2175
280	417	661	608	425	102	138		977	1413	1658	1846	1990
270	179	446	508	344	68.6	88.3		928	1361	1556	1685	1766
260	49.6	161	389	251	43.9	52.2		850	1287	1416	1509	1556
250			240	143	3.1	12.4		754	1191	1357	1324	1341
240			12.4	26.3				643	1065	1096	1119	1127
230								508	917	946	946	960
220								389	768	794	781	807
210								286	608	655	667	698
200								205	462	540	565	608
190								152	335	439	485	524
180								115	248	355	410	454
170								91.5	189	291	348	389
160								77.1	152	240	295	340
150								68.9	129	205	249	294
140								64.0	115	179	214	255
130								56.5	107	161	189	226
120								44.5	99.4	148	171	208
110								12.4	12.4	12.4	143	170

ELECTRON DENSITY

PUERTO RICO 60 W 14 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL												
HMIN	106	110	110	110	110	110	240	250	239	241	262	277
HMAX	344	350	358	356	368	391	381	364	366	384	380	372
SHMAX	2827	2925	2918	2528	2539	2690	1661	1417	1234	1215	945	889
KM												
400						2000						
390						2000	1907			1406		
380						1992	1907			1405	1278	1367
370					2096	1970	1891	1846	1583	1389	1267	1367
360			2571	2294	2089	1935	1851	1843	1579	1355	1234	1348
350	2790	2790	2562	2288	2062	1882	1786	1817	1553	1300	1179	1303
340	2787	2771	2524	2256	2008	1822	1688	1762	1503	1240	1104	1231
330	2748	2714	2456	2194	1930	1750	1568	1679	1429	1152	1004	1143
320	2667	2620	2351	2090	1836	1658	1431	1576	1341	1050	886	1004
310	2536	2487	2227	1969	1732	1556	1274	1416	1212	917	742	834
300	2362	2326	2080	1831	1618	1435	1111	1257	1065	781	596	608
290	2161	2124	1907	1683	1487	1316	946	1073	889	643	446	375
280	1932	1907	1727	1509	1341	1197	768	875	698	492	274	71.4
270	1692	1688	1537	1341	1208	1084	573	643	492	335	85.8	
260	1446	1446	1359	1184	1065	960	389	362	286	179		
250	1240	1221	1162	1019	946	844	179	12.4	112	71.4		
240	1065	1050	1004	875	824	742	12.4		12.4			
230	903	889	865	745	726	643						
220	774	754	754	643	636	557						
210	679	643	661	565	560	469						
200	599	557	573	495	495	396						
190	524	489	495	442	435	323						
180	459	429	429	394	375	262						
170	406	380	373	341	316	214						
160	357	339	327	296	267	176						
150	314	298	289	258	229	148						
140	280	259	255	216	195	127						
130	250	233	222	195	174	118						
120	228	211	202	182	163	104						
110	179	12.4	40.2	12.4	12.4	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 15 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL												
HMIN	268	239	224	200	225	158	296	117	110	108	109	106
HMAX	357	326	305	307	317	359	414	302	304	306	324	340
SHMAX	798	771	602	442	293	297	214	635	1333	1720	2253	2670
KM												
420							274					
410							274					
400							270					
390							262					
380							250					
370							236					
360	1316					274	217					
350	1309					273	192					
340	1274					269	161					2571
330	1210	1393				262	130				2362	2552
320	1131	1386			477	252	97.2				2359	2494
310	990	1343	1027	679	474	241	62.9	794	1500	2000	2325	2393
300	794	1261	1024	675	462	225	23.5	793	1499	1992	2255	2260
290	591	1143	1005	655	438	208		783	1478	1946	2146	2087
280	362	982	965	616	405	189		758	1433	1846	1996	1907
270	60.0	774	909	567	362	169		720	1366	1712	1820	1708
260		508	820	500	298	146		665	1263	1556	1623	1519
250		179	679	417	226	125		591	1154	1376	1404	1341
240		12.4	477	335	135	106		508	1019	1182	1201	1143
230			161	255	49.6	89.8		417	875	990	1004	990
220				161		76.4		327	729	834	834	854
210				77.6		65.2		248	591	679	691	735
200						55.7		179	462	562	582	631
190						47.4		134	362	469	492	532
180						40.2		103	286	389	417	454
170						21.7		83.8	224	330	356	383
160						3.1		71.4	183	276	305	330
150								66.5	156	236	259	286
140								61.5	137	201	225	253
130								48.7	123	178	198	222
120								30.9	114	165	186	204
110									12.4	112	112	170

ELECTRON DENSITY

PUERTO RICO 60 W 15 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL		A					A					
HMIN	108	111	110	110	108	107	109	230	249	269	279	286
HMAX	343	350	363	368	368	369	351	361	398	385	406	378
SHMAX	2802	2799	2801	2630	2544	2468	1865	1354	1248	927	1052	887
KM												
410											1393	
400									1367		1389	
390									1362	1316	1363	
380									1343	1312	1313	1500
370			2396	2294	2193	2128		1640	1308	1286	1240	1488
360			2395	2284	2185	2119	2000	1640	1258	1232	1143	1439
350	2827	2716	2372	2246	2153	2087	2000	1626	1195	1151	1027	1352
340	2825	2695	2322	2178	2096	2032	1983	1589	1124	1050	889	1224
330	2789	2630	2232	2067	2011	1942	1939	1522	1016	917	754	1065
320	2703	2515	2122	1944	1907	1841	1860	1437	903	774	573	854
310	2571	2362	1990	1801	1771	1721	1762	1341	768	625	389	608
300	2391	2180	1846	1652	1626	1584	1640	1216	643	477	209	335
290	2183	1969	1698	1493	1478	1446	1493	1080	508	310	83.8	60.0
280	1957	1762	1537	1327	1324	1312	1324	917	362	112	12.4	
270	1727	1556	1371	1184	1143	1159	1159	754	189	12.4		
260	1501	1341	1224	1035	993	1019	982	573	83.8			
250	1281	1159	1073	903	865	889	774	362	12.4			
240	1073	990	939	794	754	774	591	143				
230	889	848	824	698	665	670	446	12.4				
220	742	745	726	622	596	582	323					
210	634	652	636	553	540	492	240					
200	557	573	560	492	483	417	184					
190	449	500	492	437	423	348	140					
180	437	435	432	384	367	286	114					
170	389	383	378	343	310	240	94.2					
160	344	335	323	298	262	202	81.5					
150	302	294	283	251	228	174	73.7					
140	262	255	254	216	198	150	69.1					
130	228	229	228	195	176	137	65.7					
120	207	205	198	182	163	128	62.4					
110	161		12.4	12.4	60.0	83.8	49.6					

ELECTRON DENSITY

PUERTO RICO 60 W 16 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		J						S			B	
HMIN	242	223	224	222	212	220	259	109	112	109	110	109
HMAX	330	313	304	312	350	407	385	285	287	305	328	339
SHMAX	812	682	504	355	401	438	255	567	1095	1587	2147	2484
KM												
410						362						
400						361						
390						359	335					
380						354	335					
370						347	329					
360						338	318					
350					446	326	300					
340					444	313	278					2227
330	1420				436	298	250				2032	2217
320	1402	1240		625	422	282	215				2024	2183
310	1349	1238	1004	625	403	262	175			1756	1992	2124
300	1258	1209	1002	612	381	237	135			1753	1936	2041
290	1143	1143	975	582	350	210	97.2	875	1500	1725	1851	1938
280	946	1050	917	534	316	176	65.7	871	1492	1669	1747	1801
270	735	896	820	467	278	146	43.9	843	1449	1582	1612	1652
260	446	716	679	389	240	115	3.1	786	1371	1471	1474	1493
250	112	508	492	298	198	83.8		698	1253	1327	1324	1327
240		240	219	179	155	60.0		596	1111	1184	1171	1162
230		60.0	49.6	60.0	107	40.2		467	917	1019	1027	1004
220					54.8	.5		348	716	854	875	875
210								248	557	691	742	745
200								179	417	551	608	634
190								130	310	437	508	540
180								102	240	353	425	457
170								83.8	191	286	355	389
160								71.4	156	232	300	330
150								67.0	137	196	254	286
140								62.6	124	172	214	248
130								55.4	116	157	194	217
120								46.0	99.6	148	183	204
110								12.4		83.8	12.4	71.4

ELECTRON DENSITY

PUERTO RICO 60 W 16 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	R	B		R		A	A					
HMIN	109	109	110	108	109	109	110	230	254	279	278	286
HMAX	350	347	358	353	355	364	362	385	401	407	397	387
SHMAX	2576	2512	2622	2466	2420	2407	1811	1447	1167	1036	977	884
KM												
410									1316	1316		
400									1315	1311	1316	
390								1446	1306	1286	1310	1420
380								1445	1281	1241	1283	1412
370						2032	1727	1431	1240	1175	1233	1373
360			2327	2260	2161	2030	1726	1403	1179	1096	1164	1299
350	2327	2362	2319	2259	2158	2015	1714	1362	1105	982	1073	1198
340	2313	2353	2283	2233	2134	1982	1684	1301	1016	861	946	1050
330	2270	2312	2221	2176	2087	1932	1636	1232	917	716	807	875
320	2198	2227	2125	2081	2012	1858	1571	1151	804	573	661	679
310	2090	2122	2004	1962	1916	1775	1483	1050	679	432	508	446
300	1962	1985	1861	1816	1786	1669	1376	950	540	286	335	198
290	1803	1820	1702	1669	1654	1556	1263	834	403	127	161	44.9
280	1636	1650	1537	1501	1509	1420	1154	716	240	12.4	26.3	
270	1465	1465	1359	1324	1356	1283	1019	596	119			
260	1291	1291	1167	1159	1191	1155	875	477	49.6			
250	1127	1111	1004	1004	1027	1004	729	335				
240	960	960	861	861	875	848	573	161				
230	834	834	754	745	754	716	432	12.4				
220	726	729	661	657	643	596	318					
210	634	643	567	580	549	487	233					
200	557	557	524	514	469	398	170					
190	492	485	467	457	400	323	130					
180	437	423	412	403	341	262	103					
170	389	367	362	357	291	215	86.8					
160	340	323	315	317	251	182	77.2					
150	295	276	272	278	213	153	70.4					
140	255	235	233	243	188	134	67.2					
130	229	214	214	216	173	123	65.9					
120	209	201	203	200	162	114	60.7					
110	71.4	60.0	40.2	143	71.4	40.2	40.2					

ELECTRON DENSITY

PUERTO RICO 60 W 17 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S				
HMIN	269	247	238	231	249	267	234	108	109	110	109	107
HMAX	349	336	313	315	380	402	360	299	304	319	322	338
SHMAX	736	766	623	508	532	469	440	665	1288	1785	2070	2620
KM												
410						590						
400						590						
390						584						
380					557	566						
370					554	540						
360					546	504	573					
350	1420				531	462	569					
340	1400	1341			512	408	554					2571
330	1331	1335			487	351	527				2193	2559
320	1224	1296	1265	917	460	292	492			1786	2193	2509
310	1065	1221	1263	915	432	233	451		1367	1776	2161	2418
300	875	1119	1229	893	400	167	400	982	1366	1744	2069	2294
290	608	960	1153	852	362	97.2	346	970	1350	1690	1948	2139
280	286	774	1035	794	310	56.5	286	927	1316	1603	1801	1942
270	40.2	540	854	691	248	18.0	219	859	1265	1495	1636	1739
260		262	625	540	170		152	764	1195	1376	1465	1534
250		40.2	286	310	40.2		79.7	655	1107	1340	1281	1321
240			49.6	83.8			40.2	540	1004	1119	1127	1111
230								403	875	975	960	946
220								286	742	820	820	807
210								198	619	679	698	696
200								132	487	551	599	608
190								95.0	389	446	508	527
180								75.0	302	353	432	459
170								65.7	235	291	367	395
160								59.5	191	240	315	341
150								57.0	159	205	267	294
140								54.4	139	177	229	255
130								51.9	125	159	201	224
120								48.0	115	148	187	205
110								12.4	49.6	40.2	143	170

ELECTRON DENSITY

PUERTO RICO 60 W 17 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL					A	A	A		R		A	
HMIN	104	104	110	110	110	110	110	221	216	288	280	258
HMAX	359	355	359	367	370	364	358	357	395	432	401	346
SHMAX	3113	2868	2782	2859	2780	2340	1936	1415	1266	1037	1058	871
KM												
440										1215		
430										1215		
420										1203		
410										1173	1446	
400									1290	1126	1446	
390									1288	1063	1431	
380									1275	978	1391	
370				2396	2227	2128			1247	892	1324	
360	2643	2571	2571	2390	2217	2126	2032	1640	1205	794	1240	
350	2632	2567	2557	2361	2188	2102	2023	1635	1150	679	1127	1500
340	2593	2534	2506	2307	2140	2052	1987	1609	1077	562	990	1494
330	2526	2467	2418	2230	2073	1964	1923	1561	996	437	820	1452
320	2430	2356	2294	2125	1980	1858	1832	1485	907	310	643	1372
310	2316	2220	2128	2000	1870	1734	1721	1399	794	189	432	1263
300	2161	2064	1960	1846	1747	1598	1572	1291	691	83.8	219	1096
290	1978	1887	1766	1685	1618	1460	1411	1167	582	26.3	83.8	875
280	1786	1688	1574	1519	1478	1312	1240	1019	477			643
270	1601	1501	1376	1356	1341	1143	1096	875	362			335
260	1411	1321	1167	1191	1191	990	917	716	262			49.6
250	1240	1143	1004	1035	1050	848	716	557	161			
240	1096	1004	875	903	932	729	540	362	97.2			
230	950	875	770	784	814	631	403	143	57.4			
220	834	774	687	688	716	547	302		23.5			
210	726	679	615	608	616	469	219					
200	634	601	551	540	524	396	170					
190	553	527	489	471	439	335	130					
180	483	465	425	412	368	280	105					
170	429	408	367	357	310	232	88.3					
160	380	357	314	314	262	192	78.7					
150	335	317	270	274	219	163	71.4					
140	294	279	229	240	193	147	68.1					
130	246	246	211	214	176	137	64.7					
120	232	223	200	196	166	129	61.4					
110	209	179	12.4	49.6	40.2	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 18 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL				A				S				
HMIN	242	252	244	225	237	207	266	107	108	104	109	109
HMAX	346	341	338	314	317	375	379	300	291	304	330	328
SHMAX	735	610	689	507	337	423	295	724	1235	1743	2496	2422
KM												
380						417	403					
370						417	400					
360						413	391					
350	1191	1096				405	375					
340	1185	1096	1119			393	356					
330	1152	1075	1111			378	326				2396	2430
320	1086	1020	1080	834	608	362	286				2382	2418
310	993	934	1024	832	603	335	240			2000	2340	2370
300	861	820	950	816	583	307	186	896	1473	1997	2267	2280
290	716	679	834	781	544	272	132	889	1473	1962	2178	2145
280	573	524	698	729	492	240	71.4	870	1459	1882	2046	1985
270	389	310	524	657	425	202	26.3	842	1420	1756	1889	1806
260	198	83.8	286	573	335	164		799	1357	1612	1708	1612
250	71.4		60.0	446	219	127		724	1260	1446	1512	1429
240				262	49.6	94.3		631	1154	1257	1301	1240
230				60.0		68.6		519	1019	1096	1119	1050
220						45.8		389	861	917	932	896
210						12.4		286	698	768	768	754
200								198	540	631	643	643
190								140	403	498	540	549
180								107	302	398	454	469
170								87.2	235	316	378	406
160								74.8	187	254	325	351
150								67.8	153	211	276	305
140								62.6	132	179	233	262
130								56.0	121	160	201	225
120								46.5	113	151	187	208
110								12.4	60.0	138	127	112

ELECTRON DENSITY

PUERTO RICO 60 W 18 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			A		A	A	B					
HMIN	106	110	109	109	110	110	110	228	230	289	283	265
HMAX	342	353	366	368	363	355	355	358	406	435	396	363
SHMAX	2726	2700	2789	2808	2490	2330	1808	1172	1350	1215	1001	1014
KM												
440										1316		
430										1314		
420										1300		
410									1367	1272		
400									1365	1231	1473	
390									1350	1176	1468	
380									1321	1104	1436	
370			2327	2327	2294				1278	1023	1375	1528
360		2430	2323	2320	2292	2064	1816	1446	1221	926	1284	1527
350	2571	2429	2296	2288	2269	2061	1813	1439	1156	807	1167	1504
340	2571	2403	2245	2232	2215	2040	1794	1409	1073	679	1019	1452
330	2545	2344	2170	2150	2125	1999	1755	1355	971	551	834	1371
320	2484	2245	2064	2042	2007	1937	1697	1274	861	417	643	1263
310	2381	2118	1944	1919	1876	1851	1616	1175	742	340	417	1127
300	2249	1969	1801	1771	1719	1751	1519	1061	619	104	179	939
290	2087	1803	1652	1626	1556	1626	1400	932	492	12.4	60.0	716
280	1907	1623	1483	1478	1376	1487	1269	807	362			446
270	1692	1429	1312	1324	1191	1354	1096	679	251			112
260	1490	1257	1171	1143	1019	1208	932	540	152			
250	1291	1111	1035	993	861	1050	774	375	83.8			
240	1127	975	907	875	729	903	625	198	49.6			
230	982	865	804	764	634	768	477	42.6				
220	848	764	716	672	553	643	335					
210	735	687	636	601	489	529	233					
200	643	619	560	534	437	427	161					
190	557	547	489	477	384	344	112					
180	477	471	423	422	335	280	87.7					
170	412	406	367	375	291	227	73.9					
160	356	351	310	327	245	192	66.1					
150	305	302	256	286	207	163	59.7					
140	260	260	217	248	186	145	57.1					
130	238	236	197	221	173	137	54.4					
120	226	224	187	207	162	130	51.7					
110	189	12.4	127	112	12.4	40.2	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 19 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL			A					S				
HMIN	255	241	242	210	203	215	257	108	111	109	103	108
HMAX	341	317	327	298	317	406	415	308	304	324	329	344
SHMAX	722	550	665	459	330	331	275	678	1302	2121	2531	2812
KM												
420							298					
410						298	297					
400						297	294					
390						294	287					
380						289	277					
370						279	266					
360						267	249					
350	1290					254	228					2536
340	1290					238	204					2533
330	1269		1143			221	176			2161	2571	2507
320	1210	1191	1137		417	200	146			2158	2556	2455
310	1131	1177	1106		416	181	118	814	1612	2133	2502	2362
300	990	1105	1050	754	410	159	89.2	809	1609	2078	2406	2254
290	814	990	969	749	398	137	64.6	791	1578	1993	2277	2112
280	608	834	848	729	381	117	44.0	758	1501	1893	2105	1954
270	362	643	679	694	362	97.2	12.4	716	1400	1752	1907	1786
260	71.4	389	477	648	335	80.7		630	1269	1588	1669	1593
250		112	143	573	298	64.9		573	1143	1411	1446	1411
240				467	251	50.9		477	980	1224	1240	1240
230				335	198	37.7		396	781	1050	1050	1065
220				161	127	12.4		310	631	861	889	917
210					49.6			233	498	698	745	768
200								173	389	551	634	643
190								127	310	437	549	540
180								97.2	246	344	467	457
170								82.9	198	286	396	389
160								74.1	161	236	335	329
150								68.8	136	196	286	282
140								65.2	124	170	245	248
130								61.5	118	156	211	221
120								52.2	112	148	192	206
110								12.4		97.2	173	143

ELECTRON DENSITY

PUERTO RICO 60 W 19 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL											J	
HMIN	106	102	109	109	110	109	232	230	239	265	287	266
HMAX	359	366	370	383	367	378	369	366	400	396	401	370
SHMAX	3059	2991	2998	3156	2553	2661	1648	1522	1463	961	949	887
KM												
410											1367	
400									1446	1191	1367	
390				2500					1440	1186	1351	
380				2499		2128			1421	1158	1308	
370		2465	2536	2481	2161	2123	2000	1727	1389	1103	1239	1393
360	2571	2461	2521	2441	2155	2100	1988	1723	1345	1023	1143	1378
350	2560	2431	2478	2379	2128	2061	1946	1701	1288	917	1019	1333
340	2522	2376	2406	2294	2079	2005	1866	1658	1216	804	875	1259
330	2456	2294	2305	2183	2000	1932	1762	1595	1133	679	716	1154
320	2357	2183	2161	2057	1895	1836	1640	1506	1038	562	624	1019
310	2234	2057	2014	1907	1774	1727	1493	1400	917	437	335	814
300	2089	1889	1838	1735	1652	1606	1324	1278	794	310	143	608
290	1925	1719	1650	1572	1501	1474	1143	1131	661	179	40.2	389
280	1752	1537	1465	1394	1356	1341	960	975	524	90.5		161
270	1574	1359	1291	1221	1208	1182	735	807	389	43.3		44.9
260	1394	1208	1127	1050	1050	1035	508	643	240			
250	1226	1065	982	917	932	889	240	417	97.2			
240	1084	939	865	814	814	768	77.6	198	12.4			
230	960	834	770	716	716	655		12.4				
220	854	747	694	643	634	565						
210	754	673	631	580	560	485						
200	661	614	573	524	489	410						
190	580	557	519	477	423	342						
180	508	498	467	427	362	291						
170	439	442	412	375	305	250						
160	380	389	366	327	258	215						
150	331	344	323	286	222	185						
140	290	300	282	250	194	163						
130	254	262	250	221	176	145						
120	230	237	225	204	166	134						
110	179	220	143	97.2	49.6	71.4						

ELECTRON DENSITY

PUERTO RICO 60 W 20 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	J							S				
HMIN	260	257	249	228	225	244	282	108	109	109	108	105
HMAX	370	348	345	324	341	393	410	312	310	319	329	349
SHMAX	933	648	650	557	492	426	343	781	1619	2031	2460	2714
KM												
410							446					
400						432	443					
390						432	432					
380						428	412					
370	1290					421	386					
360	1280					411	354					
350	1248	1119	1073		590	396	310					2362
340	1196	1109	1070		590	376	267					2351
330	1122	1068	1046	834	586	354	214				2294	2316
320	1027	996	998	833	575	327	165	896		2064	2283	2256
310	903	896	926	819	557	296	112	896	1756	2053	2247	2171
300	754	768	824	789	531	259	71.4	887	1745	2015	2184	2055
290	573	608	691	745	500	219	42.5	861	1711	1949	2091	1921
280	389	417	524	687	459	175		825	1655	1856	1982	1769
270	179	219	298	608	412	135		777	1589	1742	1846	1593
260	12.4	60.0	97.2	519	355	77.6		716	1501	1588	1698	1429
250			12.4	403	286	40.2		636	1359	1429	1519	1257
240				219	212			551	1191	1257	1341	1065
230				49.6	97.2			457	1004	1050	1143	932
220								362	814	875	975	807
210								270	625	729	807	707
200								192	477	596	679	616
190								135	362	498	565	540
180								102	286	403	477	477
170								82.6	224	329	403	417
160								71.0	183	272	342	362
150								67.2	154	232	291	310
140								63.4	137	198	253	262
130								58.9	124	178	226	228
120								47.2	116	165	208	210
110								12.4	83.8	97.2	143	179

ELECTRON DENSITY

PUERTO RICO 60 W 20 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	109	108	108	104	105	229	236	223	257	291	269
HMAX	351	371	378	369	369	355	377	382	401	417	414	368
SHMAX	2664	2959	2997	2780	2818	2312	1665	1538	1433	1185	1206	951
KM												
420										1316	1556	
410									1420	1312	1554	
400									1420	1293	1533	
390								1669	1411	1259	1489	
380		2430	2362				1727	1668	1389	1209	1422	
370		2430	2354	2430	2327		1722	1655	1353	1143	1331	1556
360	2294	2414	2325	2419	2319	1969	1701	1624	1304	1059	1226	1544
350	2293	2371	2272	2379	2290	1966	1662	1574	1240	960	1080	1495
340	2278	2302	2197	2311	2240	1948	1606	1501	1165	834	917	1410
330	2236	2202	2096	2205	2169	1911	1528	1415	1073	716	735	1283
320	2169	2075	1976	2083	2078	1846	1436	1308	960	585	508	1127
310	2064	1934	1831	1938	1962	1777	1329	1191	848	462	298	939
300	1944	1786	1683	1766	1826	1687	1204	1050	729	335	97.2	679
290	1813	1612	1524	1588	1683	1578	1080	896	608	219		389
280	1652	1446	1371	1394	1524	1459	932	742	487	122		127
270	1493	1274	1216	1216	1359	1341	794	573	375	67.6		12.4
260	1327	1127	1084	1035	1191	1198	625	403	251	19.3		
250	1162	993	960	889	1019	1065	446	219	152			
240	1004	886	844	768	875	932	219	71.4	83.8			
230	865	794	754	672	754	807	40.2		43.3			
220	770	716	679	601	652	679						
210	694	649	619	540	557	557						
200	631	585	562	487	477	457						
190	573	524	508	438	412	375						
180	513	467	457	397	356	310						
170	443	417	408	358	306	262						
160	389	366	357	318	266	222						
150	340	323	317	283	234	190						
140	296	286	279	251	206	165						
130	265	253	248	221	185	147						
120	247	230	229	205	172	135						
110	60.0	127	143	71.4	161	112						

ELECTRON DENSITY

PUERTO RICO 60 W 21 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S	A			
HMIN	249	239	229	231	219	239	256	105	109	110	110	108
HMAX	335	322	301	327	368	357	408	321	305	313	305	337
SHMAX	807	601	410	421	531	350	315	798	1438	1833	1806	2358
KM												
410							348					
400							347					
390							341					
380							330					
370					508		316					
360					507	432	297					
350					502	430	273					
340	1393				494	424	246					2161
330	1389	1119		661	482	411	216	854				2154
320	1355	1118		657	466	393	186	854		2032		2122
310	1287	1094	939	640	448	371	155	849	1640	2030	2128	2063
300	1186	1035	938	611	426	342	124	836	1637	2003	2121	1969
290	1050	939	909	568	400	306	91.9	814	1614	1941	2064	1858
280	854	814	814	508	366	266	65.7	790	1568	1841	1952	1727
270	608	643	704	432	325	214	46.5	749	1499	1712	1747	1572
260	310	462	557	335	274	161	16.4	687	1404	1556	1556	1420
250	40.2	219	375	229	219	83.8		608	1283	1383	1394	1274
240		40.2	143	90.5	152	12.4		508	1155	1198	1226	1096
230			12.4		77.6			389	960	1027	1080	946
220					12.4			286	774	820	917	820
210								205	573	667	768	707
200								149	432	540	643	616
190								115	323	439	529	532
180								92.2	251	353	446	454
170								78.7	198	281	368	395
160								70.4	164	229	315	335
150								67.1	140	190	262	291
140								63.7	126	168	222	248
130								60.4	119	156	196	219
120								35.5	113	148	185	207
110								12.4	60.0	40.2	83.8	161

ELECTRON DENSITY

PUERTO RICO 60 W 21 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	110	110	110	110	112	240	216	267	260	268	268
HMAX	348	367	378	377	367	366	382	403	405	392	398	375
SHMAX	2468	2794	2856	2851	2615	2315	1599	1628	1113	1064	1083	956
KM												
410								1500	1341			
400								1500	1339	1341	1367	
390							1669	1490	1320	1341	1361	
380			2294	2362			1668	1467	1283	1327	1335	1341
370		2294	2286	2355	2161	1907	1657	1431	1226	1293	1290	1338
360		2287	2256	2325	2155	1904	1629	1383	1157	1240	1224	1316
350	2161	2254	2203	2270	2130	1885	1584	1320	1061	1165	1143	1271
340	2152	2193	2121	2190	2084	1850	1517	1247	946	1073	1038	1200
330	2117	2096	2019	2079	2012	1798	1437	1161	820	946	903	1115
320	2055	1982	1893	1948	1916	1719	1341	1061	691	820	754	1004
310	1959	1846	1756	1801	1808	1631	1240	950	540	667	591	848
300	1846	1698	1604	1631	1682	1534	1119	834	389	524	403	679
290	1712	1556	1446	1462	1542	1425	982	716	229	362	240	508
280	1570	1401	1291	1291	1401	1316	834	608	104	198	104	262
270	1420	1255	1143	1143	1255	1184	679	487	30.9	77.6	26.3	49.6
260	1260	1096	993	990	1119	1061	492	371		3.1		
250	1127	971	875	865	982	939	286	262				
240	990	867	774	754	854	814	12.4	161				
230	865	786	696	672	735	691		90.5				
220	764	716	631	602	643	591		40.2				
210	672	664	578	546	560	500						
200	601	616	526	498	469	417						
190	534	569	477	451	429	348						
180	477	519	434	409	375	286						
170	417	459	389	366	327	240						
160	362	400	348	328	286	203						
150	315	348	310	293	253	175						
140	274	306	277	262	224	154						
130	240	269	248	238	201	140						
120	225	248	227	222	186	130						
110	40.2	60.0	40.2	12.4	83.8							

ELECTRON DENSITY

PUERTO RICO 60 W 22 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	S							S			B	
HMIN	249	240	252	231	227	217	242	111	109	110		110
HMAX	342	343	328	321	315	311	405	324	284	329		340
SHMAX	718	683	537	481	394	287	359	906	1131	1962		2386
KM												
410							375					
400							375					
390							370					
380							362					
370							348					
360							335					
350	1215	1143					312					
340	1215	1141					266					2161
330	1193	1118	1027	814			256	917		1846		2147
320	1141	1064	1017	814	698	432	229	916		1838		2127
310	1058	982	978	801	695	432	195	909		1809		2040
300	946	861	909	768	676	427	161	892		1761		1938
290	781	729	807	710	638	415	124	867	1475	1693		1822
280	608	573	661	643	585	396	94.5	842	1471	1597		1663
270	417	362	477	549	508	370	69.1	799	1443	1490		1540
260	161	161	219	437	417	335	49.6	732	1383	1368		1386
250	12.4	56.5		286	286	291	26.3	652	1291	1240		1224
240				112	112	219		562	1171	1096		1065
230					30.9	127		457	1004	946		917
220						40.2		362	834	794		784
210								270	661	661		688
200								198	508	540		601
190								148	375	446		527
180								115	292	362		465
170								93.2	229	286		406
160								82.2	189	236		351
150								76.8	161	196		305
140								71.4	142	175		259
130								56.2	132	163		232
120								46.5	119	149		214
110									60.0	12.4		60.0

ELECTRON DENSITY

PUERTO RICO 60 W 22 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL			A	A	A	A						
HMIN	107	110	108	107	109	106	238	221	229	275	282	269
HMAX	347	376	378	376	379	369	365	400	397	408	419	393
SHMAX	2509	3028	2929	2762	2857	2500	1623	1903	1151	959	1107	1077
KM												
420											1316	
410										1191	1309	
400								1612	1290	1185	1287	1341
390								1606	1286	1161	1249	1341
380		2294	2327	2280	2294			1590	1265	1118	1194	1328
370		2290	2320	2256	2286	2193	1846	1563	1226	1056	1135	1300
360		2270	2288	2230	2259	2185	1843	1526	1170	978	1036	1256
350	2227	2231	2232	2180	2212	2155	1822	1477	1096	886	917	1198
340	2219	2174	2150	2100	2143	2104	1760	1419	1004	781	781	1133
330	2183	2092	2042	2007	2052	2032	1717	1349	907	667	631	1019
320	2109	1998	1919	1880	1952	1936	1631	1265	794	540	477	875
310	2019	1882	1771	1742	1826	1813	1531	1178	679	403	310	716
300	1893	1756	1620	1588	1683	1682	1401	1077	557	262	143	508
290	1756	1612	1462	1446	1540	1540	1255	960	437	143	60.0	262
280	1604	1462	1312	1298	1386	1386	1111	848	323	49.6		97.2
270	1446	1327	1171	1127	1240	1226	917	729	219			12.4
260	1291	1175	1035	990	1061	1073	716	608	143			
250	1127	1035	907	875	917	903	446	477	68.3			
240	975	917	810	764	804	754	60.0	348	52.2			
230	848	814	732	679	698	631		179	6.8			
220	745	732	674	601	599	519						
210	657	657	623	535	521	427						
200	587	591	578	482	446	348						
190	531	527	529	443	382	286						
180	486	472	471	408	325	235						
170	446	422	410	371	276	189						
160	401	377	351	325	232	152						
150	353	335	307	276	201	132						
140	310	302	275	240	185	122						
130	276	272	248	219	175	116						
120	249	243	229	207	167	108						
110	179	60.0	179	161	143	97.2						

ELECTRON DENSITY

PUERTO RICO 60 W 23 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								S	A	A	S	
HMIN	265	266	244	253	240	264	292	112	107	107		110
HMAX	363	365	356	366	385	412	405	527	515	309		335
SHMAX	665	668	703	596	544	590	504	1029	1681	1687		2460
KM												
420						861						
410						661	898					
400						855	696					
390					643	841	684					
380					642	619	660					
370	1119	1073		774	633	591	621					
360	1118	1069	982	772	615	553	578					
350	1042	1044	979	760	586	508	514					
340	1035	992	961	738	551	451	446					2362
330	950	917	926	705	508	389	335	1119				2356
320	834	814	880	664	451	329	262	1116	1669			2311
310	698	691	810	608	389	262	152	1098	1666	2161		2222
300	540	540	718	529	329	198	80.0	1066	1649	2144		2096
290	375	375	608	439	268	132		1019	1614	2086		1942
280	179	198	487	348	205	77.6		980	1562	1982		1758
270	54.8	49.6	335	240	135	40.2		875	1490	1638		1689
260			161	83.8	75.6			784	1408	1689		1537
250			54.8		47.2			679	1303	1468		1359
240					1.3			573	1179	1240		1191
230								457	1050	1050		1019
220								348	875	875		875
210								255	704	704		745
200								186	551	585		643
190								135	417	492		549
180								104	316	410		469
170								83.8	240	335		406
160								75.5	195	280		351
150								67.2	161	229		307
140								63.2	137	192		272
130								57.7	122	163		247
120								46.1	113	152		221
110									90.5	127		12.4

ELECTRON DENSITY

PUERTO RICO 60 W 23 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	B						S				S	
HMIN		110	110	109	110	109	243	229	234	283	269	276
HMAX		363	381	381	382	376	368	381	390	394	405	395
SHMAX		2948	2924	2713	2594	2442	1449	1571	1203	863	873	856
KM												
410											1167	
400										1143	1164	1191
390			2161	2096	2032			1612	1290	1141	1143	1188
380			2161	2096	2031	2032		1611	1283	1121	1100	1169
370		2430	2150	2083	2019	2028	1786	1603	1262	1079	1036	1129
360		2429	2121	2051	1990	2008	1776	1579	1227	1012	950	1065
350		2409	2075	1988	1943	1970	1745	1540	1179	926	844	987
340		2364	2007	1914	1874	1913	1688	1486	1116	826	729	875
330		2294	1923	1823	1794	1829	1608	1418	1041	726	596	742
320		2191	1819	1715	1690	1737	1495	1341	943	619	462	585
310		2070	1704	1601	1578	1631	1368	1240	834	498	323	417
300		1934	1589	1483	1446	1501	1208	1119	716	375	198	262
290		1786	1460	1341	1318	1368	1035	990	596	240	104	112
280		1620	1329	1212	1175	1224	854	834	477	127	53.1	43.3
270		1462	1204	1060	1038	1065	643	661	348	54.8	5.3	
260		1308	1084	960	917	928	389	492	209			
250		1167	971	859	804	794	143	286	104			
240		1035	867	770	701	679		127	46.5			
230		907	778	694	622	585		12.4				
220		794	704	625	553	506						
210		698	643	568	492	435						
200		615	580	513	442	373						
190		540	524	462	389	320						
180		471	467	412	344	270						
170		412	412	362	298	229						
160		357	366	318	259	195						
150		310	323	279	225	166						
140		270	282	248	196	143						
130		239	251	221	177	136						
120		224	228	204	165	129						
110		40.2	60.0	127	112	71.4						

ELECTRON DENSITY

PUERTO RICO 60 W 24 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL			C						C			
HMIN	262	249	245	217	213	223	280	111		110	116	112
HMAX	359	357	345	324	338	367	418	310		319	326	340
SHMAX	669	762	665	523	410	332	383	818		2007	2274	2710
KM												
420							417					
410							416					
400							409					
390							397					
380							379					
370						417	359					
360	1167	1073				415	332					
350	1152	1068	917			405	296					
340	1103	1047	915		524	383	259					2571
330	1016	1009	901	716	521	347	219				2500	2556
320	903	953	871	715	511	321	175			2064	2492	2509
310	768	882	829	705	494	289	127	960		2052	2442	2430
300	608	774	770	685	468	255	79.7	952		2012	2345	2316
290	403	655	688	655	435	219	47.2	928		1942	2205	2187
280	198	508	599	616	394	182	1.3	688		1841	2032	2014
270	71.4	335	508	553	346	147		827		1712	1806	1838
260		179	389	485	286	112		747		1556	1578	1631
250		12.4	219	398	219	80.7		652		1362	1362	1420
240				302	143	53.8		551		1191	1111	1201
230				161	79.7	28.3		446		1019	917	1004
220				40.2	43.3			353		861	754	814
210								278		704	631	679
200								214		585	532	573
190								168		487	459	495
180								138		410	395	437
170								114		342	335	383
160								101		286	290	335
150								93.5		240	251	290
140								88.1		212	218	251
130								81.6		194	206	229
120								67.6		182	179	209
110										40.2		

ELECTRON DENSITY

PUERTO RICO 60 W 24 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL						A						C
HMIN	112	111	110	109	108	110	111	250	239	241	242	276
HMAX	350	374	378	401	403	398	381	371	362	395	394	396
SHMAX	2789	2890	2767	3091	2806	2634	2130	1413	1156	1317	1045	910
KM												
410				2096	1969							
400				2096	1968	1969				1493	1191	1240
390				2088	1957	1964	1938			1392	1190	1236
380		2260	2161	2067	1932	1946	1937	1876		1377	1175	1210
370		2258	2154	2033	1890	1914	1926	1876	1500	1348	1143	1162
360		2238	2128	1987	1835	1867	1896	1657	1500	1305	1096	1088
350	2430	2196	2083	1927	1777	1807	1846	1605	1484	1247	1027	993
340	2417	2128	2014	1850	1694	1723	1777	1722	1444	1173	952	875
330	2377	2048	1925	1764	1597	1627	1687	1606	1381	1086	859	742
320	2310	1941	1819	1638	1490	1526	1578	1462	1291	982	764	603
310	2212	1813	1695	1556	1383	1423	1459	1291	1186	861	655	477
300	2096	1682	1568	1435	1274	1303	1312	1119	1061	742	551	353
290	1954	1556	1420	1316	1143	1159	1171	896	903	608	446	179
280	1786	1401	1283	1184	1027	1027	1019	661	735	477	327	49.6
270	1631	1265	1127	1061	917	907	875	417	540	323	229	
260	1462	1143	993	952	826	804	716	161	335	170	112	
250	1308	1019	886	859	739	707	585	12.4	127	71.4	49.6	
240	1143	907	794	778	667	616	467		12.4			
230	990	804	716	704	608	547	371					
220	848	716	649	648	551	477	294					
210	726	643	585	593	499	423	229					
200	619	573	529	540	451	371	183					
190	524	508	477	487	403	320	147					
180	453	457	427	429	357	272	119					
170	395	406	375	373	310	223	99.0					
160	344	356	335	323	270	189	86.3					
150	303	305	294	279	233	161	79.5					
140	271	260	248	246	201	143	74.1					
130	250	236	219	219	181	136	68.3					
120	226	223	205	206	170	128	61.9					
110			49.6	127	143	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 25 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL	C	C	C	C	C	C	C	C	C			
HMIN										104	113	126
HMAX										317	340	344
SHMAX										2162	2766	2814
KM												
350												2571
340											2571	2569
330											2558	2538
320										2430	2520	2475
310										2421	2455	2373
300										2372	2367	2242
290										2280	2266	2037
280										2145	2112	1922
270										1978	1928	1727
260										1786	1715	1534
250										1556	1490	1321
240										1316	1260	1142
230										1050	1035	993
220										834	851	865
210										661	716	764
200										529	599	670
190										427	500	582
180										356	425	502
170										305	362	435
160										259	310	373
150										225	266	327
140										196	234	292
130										176	210	256
120										163	184	229
110										112		198

ELECTRON DENSITY

PUERTO RICO 60 W 25 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	108	109	104	106	103	110	216	244	249	227	283	262
HMAX	366	378	381	405	399	386	401	393	389	369	409	379
SHMAX	3138	3005	3014	3006	2932	2382	1885	1449	1164	995	962	960
KM												
410				2161			1727				1265	
400				2158	2032		1727	1612			1257	
390			2327	2141	2026	1756	1718	1611	1446		1229	
380		2430	2327	2105	2007	1754	1694	1596	1438		1181	1393
370	2680	2422	2314	2091	1975	1739	1655	1562	1407	1191	1111	1384
360	2674	2387	2279	1973	1929	1710	1602	1510	1354	1183	1023	1351
350	2642	2326	2222	1807	1864	1669	1530	1438	1274	1157	907	1294
340	2579	2232	2139	1786	1793	1602	1446	1356	1182	1113	781	1214
330	2481	2122	2032	1657	1705	1532	1351	1240	1073	1050	631	1119
320	2362	1985	1907	1543	1607	1434	1240	1111	932	969	477	975
310	2210	1831	1771	1410	1501	1368	1131	975	794	883	310	794
300	2048	1669	1626	1291	1388	1277	1016	820	625	781	143	591
290	1846	1509	1478	1167	1274	1182	889	661	477	679	54.8	310
280	1650	1341	1327	1050	1155	1086	754	477	286	562		
270	1446	1191	1191	928	1038	987	631	286	143	446		
260	1257	1065	1061	834	934	886	492	127	67.6	335		
250	1096	939	939	747	842	794	348	49.6	12.4	198		
240	960	826	834	679	754	707	189			90.5		
230	844	739	754	619	687	629	90.5			30.9		
220	747	673	679	569	615	557	40.2					
210	665	614	619	526	547	489						
200	601	559	568	481	483	423						
190	540	508	513	437	423	355						
180	477	457	457	389	371	300						
170	422	408	403	341	323	251						
160	371	362	357	298	282	213						
150	328	314	317	259	246	188						
140	286	267	286	225	216	168						
130	248	239	254	201	192	155						
120	228	227	232	188	174	144						
110	161	161	205	161	161	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 26 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								A				
HMIN	251	244	222	234	235	250	312	111	103	103	108	107
HMAX	339	355	370	384	410	409	431	335	322	344	331	344
SHMAX	698	717	645	551	577	495	433	878	1437	2754	2766	2926
KM												
440							540					
430							540					
420							536					
410					540	508	524					
400					538	506	506					
390				608	532	499	480					
380				607	521	488	446					
370			661	600	506	471	405					
360		917	658	586	486	450	356					
350		916	648	562	463	425	304			2032		2643
340	1191	904	631	534	435	392	233	917		2030	2790	2641
330	1179	881	608	499	401	353	152	916	1341	2012	2790	2613
320	1136	848	577	455	362	310	65.7	904	1341	1973	2771	2554
310	1065	804	540	406	315	262		881	1332	1914	2720	2464
300	960	742	499	351	262	214		848	1311	1834	2637	2343
290	834	661	451	298	219	161		804	1276	1739	2520	2194
280	679	573	403	246	175	107		742	1229	1612	2379	2014
270	462	462	351	186	127	68.6		672	1175	1462	2199	1826
260	198	310	292	132	83.8	42.5		594	1105	1308	1982	1631
250		77.6	233	79.7	52.2			508	1013	1157	1739	1446
240			161	40.2	21.7			417	903	982	1446	1257
230			65.7					327	781	820	1143	1080
220								248	655	691	896	946
210								189	540	573	698	807
200								143	437	477	557	698
190								109	344	403	446	596
180								87.7	274	341	375	508
170								74.8	219	286	320	425
160								69.1	182	244	268	362
150								65.9	157	213	223	310
140								62.6	140	185	193	267
130								58.4	127	164	177	228
120								50.4	118	154	169	207
110									103	146	161	161

ELECTRON DENSITY

PUERTO RICO 60 W 26 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL												
HMIN	110	107	107	107	107	110	260	265	253	266	244	285
HMAX	387	381	390	393	419	404	435	391	398	385	379	427
SHMAX	3039	3105	2768	2613	2543	2462	2168	1632	1616	1362	1267	1165
KM												
440							1969					
430							1967					1316
420					1583		1952					1311
410					1580	1756	1921					1291
400				1786	1568	1755	1875	1969	1727			1254
390	2161	2294	1907	1785	1548	1743	1814	1969	1721	1816		1195
380	2157	2295	1899	1774	1519	1719	1735	1953	1698	1812	1500	1127
370	2137	2283	1878	1751	1482	1682	1648	1913	1657	1781	1492	1041
360	2102	2255	1842	1713	1433	1625	1543	1847	1599	1720	1465	943
350	2050	2210	1791	1661	1368	1562	1416	1754	1519	1623	1417	834
340	1977	2143	1715	1586	1301	1485	1269	1640	1425	1501	1349	726
330	1897	2057	1634	1505	1233	1403	1127	1493	1316	1356	1258	608
320	1796	1959	1546	1420	1164	1314	960	1341	1191	1182	1154	477
310	1640	1846	1446	1332	1080	1225	794	1143	1050	982	1035	335
300	1567	1727	1341	1240	1004	1150	643	917	889	774	889	179
290	1435	1606	1240	1133	924	1050	477	679	716	540	742	60.0
280	1316	1474	1124	1041	848	960	323	389	524	286	591	
270	1201	1341	1032	952	774	875	179	83.8	286	71.4	417	
260	1096	1208	946	875	710	778	12.4		71.4		219	
250	996	1073	875	794	649	688					54.8	
240	900	946	807	729	593	608						
230	814	834	754	674	545	532						
220	739	726	706	623	500	465						
210	665	643	656	578	462	396						
200	594	567	608	536	425	335						
190	527	495	547	487	385	286						
180	465	441	477	442	347	237						
170	406	389	412	394	305	198						
160	353	340	351	346	257	169						
150	310	298	298	300	212	146						
140	267	259	254	262	179	130						
130	235	228	221	232	161	122						
120	219	209	208	210	152	115						
110	40.2	161	161	143	143	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 27 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL								S			J	
HMIN	274	242	308	359	460	421	307	133	113	107	109	111
HMAX	379	485	512	541	738	612	475	468	476	513	482	462
SHMAX	1186	1620	1200	1043	1186	955	1085	1454	1335	1351	1397	1328
KM												
740					661							
730					660							
720					658							
710					654							
700					647							
690					639							
680					630							
670					618							
660					604							
650					589							
640					572							
630					553							
620					531	794						
610					508	794						
600					484	790						
590					457	782						
580					429	768						
570					400	750						
560					368	727						
550				896	335	698						
540				896	302	665						
530				892	262	627						
520			982	883	223	583				446		
510			982	868	183	535				446		
500			978	847	143	477				446		
490		1004	967	818	97.2	423				445	477	
480		1004	951	786	69.7	362	982		590	444	477	
470		1001	928	746	42.1	292	981	875	590	442	476	508
460		994	898	700		226	975	874	589	440	476	506
450		984	863	643		152	961	870	586	437	475	507
440		970	820	587		83.8	941	864	582	434	473	506
430		954	771	521		47.2	914	855	577	430	471	504
420		933	716	454			879	842	570	426	469	500
410		910	650	382			838	827	562	421	466	496
400		885	587	310			794	809	553	415	463	491
390		854	516	229			735	791	542	408	459	486
380	1583	819	446	145			665	768	529	401	455	479
370	1574	782	375	65.7			594	742	516	393	451	470
360	1543	740	302	12.4			516	709	502	386	446	460
350	1489	690	226				427	671	486	378	438	449
340	1414	638	152				323	630	470	370	429	439
330	1329	585	92.8				198	583	452	362	421	427
320	1198	527	56.5				83.8	529	434	353	413	416
310	1035	469	12.4				30.9	477	415	345	406	405
300	834	406						417	396	336	399	393
290	608	346						351	377	330	391	383
280	198	286						292	357	324	384	373
270		219						236	335	319	378	363
260		143						191	316	315	371	354
250		65.7						158	298	308	364	346
240								136	280	302	357	338
230								119	262	299	350	332
220								104	245	294	343	327
210								91.1	225	290	336	322
200								79.3	203	284	322	318
190								68.3	181	264	307	313
180								58.3	159	240	289	305
170								49.6	141	214	270	292
160								42.9	127	189	250	273
150								29.8	114	165	227	243
140								12.4	108	147	196	215
130									103	138	176	191
120									98.2	132	164	174
110										117	127	

ELECTRON DENSITY

PUERTO RICO 60 W 27 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL			A				B	A				
HMIN	109	109	109	106	107	110	105	253	200	284	252	238
HMAX	709	604	627	432	527	414	401	408	446	471	425	378
SHMAX	3198	2883	3136	1574	2423	1431	1233	719	720	625	572	525
KM												
710	754											
700	754											
690	754											
680	753											
670	751											
660	749											
650	747											
640	744											
630	741		917									
620	738		917									
610	734	875	916									
600	729	875	914									
590	725	874	912									
580	719	873	908									
570	714	870	904									
560	708	867	899									
550	701	863	893									
540	694	858	887									
530	687	853	879		854							
520	679	847	871		854							
510	671	839	862		853							
500	662	831	852		851							
490	653	823	842		848							
480	644	813	830		844					573		
470	634	803	818		839					573		
460	624	791	805		833					571		
450	613	779	791		827				524	563		
440	601	767	776	774	819				523	551		
430	589	753	761	774	810				520	534	573	
420	576	738	743	772	801	814			513	512	575	
410	563	722	724	766	789	814	854	735	502	487	567	
400	550	707	706	762	775	811	854	726	487	457	556	
390	538	690	686	753	761	806	852	725	471	421	540	
380	525	673	670	742	746	798	845	710	454	380	517	573
370	512	654	650	729	734	786	834	689	432	330	482	572
360	498	633	630	713	720	772	818	663	408	281	457	565
350	484	610	610	694	705	754	798	631	384	235	417	553
340	470	586	588	675	690	733	775	586	359	184	371	536
330	455	558	566	652	673	711	751	534	329	143	320	517
320	441	528	540	627	654	684	713	469	298	108	262	492
310	427	499	515	599	633	653	675	396	266	76.4	212	455
300	413	471	488	571	608	619	625	316	237	51.7	161	406
290	400	444	462	543	581	577	573	240	205	24.3	112	342
280	388	420	437	514	552	536	513	152	176		80.7	270
270	377	399	415	483	523	498	457	83.8	146		55.8	189
260	366	380	396	455	492	462	400	43.3	122		32.2	104
250	357	363	381	429	462	430	346		99.3			60.0
240	349	351	368	406	433	398	295		77.6			12.4
230	341	340	358	386	408	368	251		60.0			
220	334	332	349	371	385	341	215		46.5			
210	328	327	341	356	364	313	182		29.1			
200	323	322	332	343	343	286	155		1.3			
190	317	316	321	324	320	259	131					
180	312	311	310	298	292	228	112					
170	298	298	282	259	260	196	96.4					
160	279	282	250	226	232	171	88.0					
150	254	262	219	193	204	150	81.9					
140	222	237	195	171	177	134	78.2					
130	195	204	178	158	157	123	74.4					
120	184	187	168	150	146	114	67.6					
110	143	143	127	127	60.0	12.4	12.4					

ELECTRON DENSITY

PUERTO RICO 60 W 28 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL												
HMIN	207	243	315	317	187	213	270	109	109	108	106	110
HMAX	357	401	472	445	383	374	423	279	323	318	317	332
SHMAX	333	259	285	298	327	226	241	515	1304	2022	2162	2423
KM												
480			298									
470			298									
460			295									
450			290	335								
440			281	335								
430			270	331			240					
420			254	324			240					
410		274	236	313			238					
400		274	214	298			235					
390		272	190	281	286		229					
380		267	163	257	286	219	221					
370		258	135	231	284	219	211					
360	355	247	109	198	280	217	200					
350	354	233	81.8	168	273	213	187					
340	349	215	60.0	131	264	208	169					2227
330	341	194	44.2	83.8	253	200	148		1265			2226
320	328	172	15.9	30.9	241	191	124		1264	2193	2327	2208
310	314	146			225	182	97.2		1253	2183	2319	2165
300	295	122			207	169	73.9		1227	2142	2277	2095
290	270	97.2			186	153	54.8		1186	2070	2201	1994
280	243	75.6			165	133	33.2	716	1131	1963	2090	1866
270	212	57.4			143	114		709	1065	1831	1954	1727
260	179	44.2			123	93.4		685	971	1669	1766	1572
250	140	20.7			104	73.5		643	865	1446	1556	1411
240	104				85.7	57.0		587	754	1221	1341	1255
230	71.4				70.0	43.7		508	643	1004	1096	1080
220	47.7				56.5	20.7		417	540	794	875	939
210	12.4				45.8			310	457	625	704	814
200					30.9			229	380	508	573	691
190					7.8			167	315	425	477	585
180								127	262	355	389	487
170								101	219	295	331	403
160								35.3	185	251	286	341
150								74.5	158	213	245	298
140								68.8	136	182	207	258
130								65.0	122	161	178	219
120								61.2	113	146	168	203
110								12.4	71.4	97.2	127	49.6

ELECTRON DENSITY

PUERTO RICO 60 W 28 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL	A	A	A	A	A	A	A	A	A	A	A	
HMIN	109	108	105								298	288
HMAX	367	372	372								429	426
SHMAX	3047	2986	3128								1372	1628
KM												
430											1669	1938
420											1659	1933
410											1626	1906
400											1570	1855
390											1483	1780
380		2571	2790								1376	1680
370	2500	2571	2789								1253	1556
360	2405	2551	2766								1119	1411
350	2267	2502	2708								960	1221
340	2415	2424	2617								794	1004
330	2340	2318	2487								608	794
320	2238	2175	2328								403	540
310	2118	2014	2142								161	286
300	1969	1838	1948								26.3	97.2
290	1803	1631	1747									26.3
280	1636	1446	1534									
270	1465	1257	1321									
260	1291	1084	1157									
250	1111	946	990									
240	975	824	848									
230	854	735	716									
220	754	657	625									
210	665	591	553									
200	587	527	487									
190	521	471	429									
180	459	412	373									
170	400	356	315									
160	346	305	262									
150	295	259	231									
140	249	229	210									
130	217	213	196									
120	203	202	188									
110	112	143	179									

ELECTRON DENSITY

PUERTO RICO 60 W 29 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL		S		A								
HMIN	259	205	244	267	256	259	246	113	114	106	108	107
HMAX	360	337	414	405	395	396	347	327	314	326	321	344
SHMAX	1163	1040	1169	986	981	850	691	1503	1763	2355	2616	3095
KM												
420			1119									
410			1118	1143								
400			1109	1141	1050	960						
390			1090	1128	1048	958						
380			1060	1102	1039	945						
370			1021	1062	1019	920						
360	1846		971	1014	990	883						
350	1825		911	946	952	834	1027					2790
340	1761	1290	848	854	907	774	1022					2788
330	1656	1286	770	745	848	701	998	1612		2500	2790	2762
320	1519	1265	694	631	774	625	954	1607	2096	2494	2790	2707
310	1321	1226	608	508	679	540	883	1588	2093	2452	2766	2624
300	1096	1170	516	375	585	457	804	1550	2059	2372	2701	2507
290	834	1102	417	240	462	368	704	1498	1989	2254	2597	2370
280	540	1004	323	97.2	323	251	591	1446	1880	2105	2446	2199
270	161	889	209	30.9	143	127	446	1351	1735	1907	2271	2011
260	12.4	768	104		44.9	12.4	262	1240	1556	1392	2032	1806
250		608	49.6				49.6	1065	1362	1468	1762	1593
240		446						875	1143	1240	1501	1368
230		240						716	917	1050	1240	1143
220		104						524	716	875	1004	960
210		44.9						335	557	716	814	807
200								219	432	573	667	667
190								155	327	457	551	557
180								117	255	362	457	469
170								96.0	198	292	382	406
160								83.8	158	240	320	351
150								76.9	133	202	272	307
140								68.6	121	175	229	267
130								56.5	113	156	197	229
120								45.8	100	145	181	203
110										97.2	112	143

ELECTRON DENSITY

PUERTO RICO 60 W 29 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL	B		S		A							
HMIN		109	109	109	109	113	216	249	252	242	247	281
HMAX		366	359	365	360	375	379	389	400	368	367	399
SHMAX		3532	3014	3204	2850	2861	2043	1566	1683	1323	1067	1038
KM												
400									1756			1393
390								1786	1748			1385
380						2396	2032	1777	1724			1355
370		3135		2790		2393	2023	1746	1684	1669	1341	1304
360		3129	2790	2786	2430	2371	1995	1694	1628	1661	1337	1231
350		3089	2775	2754	2419	2326	1946	1620	1556	1630	1314	1143
340		3015	2723	2690	2384	2260	1872	1523	1472	1576	1273	1019
330		2905	2634	2594	2325	2171	1786	1407	1365	1492	1212	875
320		2749	2508	2459	2243	2055	1669	1269	1240	1388	1143	698
310		2571	2345	2309	2135	1921	1542	1111	1080	1265	1038	477
300		2372	2139	2124	2000	1769	1401	946	896	1111	917	262
290		2139	1928	1942	1846	1604	1255	774	716	939	774	65.7
280		1907	1727	1747	1685	1460	1096	573	508	735	619	
270		1669	1512	1556	1519	1283	946	362	262	540	462	
260		1446	1324	1362	1356	1155	794	143	83.8	310	262	
250		1221	1127	1198	1204	1004	608	12.4		97.2	71.4	
240		1050	975	1050	1065	875	432					
230		896	848	907	946	745	219					
220		774	745	781	824	643	49.6					
210		670	657	679	704	540						
200		587	573	582	573	454						
190		514	485	492	457	371						
180		457	410	417	362	294						
170		403	351	356	286	229						
160		357	300	305	229	187						
150		310	251	266	190	153						
140		267	221	227	169	134						
130		235	209	196	156	122						
120		215	195	185	148	113						
110		71.4	49.6	71.4	97.2							

ELECTRON DENSITY

PUERTO RICO 60 W 30 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QUAL								B				
HMIN	274	253	240	215	216	231	265	117	110	110	110	111
HMAX	369	348	334	328	400	385	392	330	307	324	328	336
SHMAX	1098	796	732	626	617	503	407	911	1525	2176	2730	2823
KM												
400					590		524					
390					588	540	524					
380					579	539	518					
370	1640				563	534	504					
360	1629				545	522	485					
350	1591	1316			519	503	457					
340	1524	1306	1096		487	481	417					2716
330	1446	1265	1094	794	450	453	371	917		2794	2753	2710
320	1324	1191	1077	791	405	413	316	912		2291	2742	2670
310	1143	1096	1041	778	362	371	251	896	1669	2260	2699	2595
300	896	946	986	756	315	320	179	868	1653	2196	2622	2485
290	608	774	909	724	272	272	112	829	1637	2096	2512	2339
280	143	591	807	683	227	218	63.8	782	1588	1969	2362	2177
270		348	679	631	183	170	29.1	723	1517	1803	2194	1960
260		60.0	524	565	143	117		657	1435	1601	1982	1762
250			310	477	104	71.4		587	1312	1383	1739	1534
240			12.4	362	71.4	44.9		508	1179	1184	1492	1324
230				209	48.0			417	1038	1004	1241	1127
220				54.8	17.0			327	854	825	1004	960
210								248	679	679	794	807
200								194	492	555	603	679
190								152	362	477	487	573
180								122	278	369	406	485
170								99.3	209	310	351	410
160								85.2	164	251	305	348
150								79.4	135	198	266	295
140								74.4	125	165	228	254
130								65.7	118	155	198	219
120								30.9	112	147	185	202
110									12.4	40.2	49.6	

ELECTRON DENSITY

PUERTO RICO 60 W 30 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
QUAL				A								
HMIN	109	110	110	110	109	110	230	239	262	236	262	267
HMAX	352	355	359	371	368	364	398	377	385	372	393	375
SHMAX	3223	3117	3164	3081	3091	2710	2200	1594	1403	1388	1189	1080
KM												
400							2032				1473	
390							2026		1816		1472	
380				2716			2005	1876	1812	1583	1456	1473
370				2716	2571	2327	1966	1670	1784	1583	1419	1471
360	2979	2941	2716	2697	2564	2326	1911	1840	1728	1570	1362	1449
350	2978	2936	2705	2645	2532	2306	1840	1786	1643	1540	1282	1406
340	2954	2897	2665	2560	2477	2264	1751	1707	1528	1491	1186	1341
330	2895	2819	2597	2442	2397	2201	1646	1593	1386	1422	1073	1263
320	2802	2702	2495	2307	2294	2107	1523	1460	1224	1341	932	1155
310	2673	2554	2376	2124	2161	1994	1386	1324	1050	1240	768	1004
300	2511	2362	2227	1928	2000	1866	1240	1159	834	1119	591	814
290	2313	2135	2050	1715	1846	1727	1096	982	608	975	417	608
280	2057	1882	1866	1512	1685	1572	932	794	335	807	179	286
270	1786	1646	1685	1308	1501	1416	754	573	83.8	625	60.0	40.2
260	1556	1425	1501	1143	1324	1269	596	335		417		
250	1341	1216	1291	990	1143	1127	432	112		198		
240	1169	1027	1111	861	1004	975	251	12.4		44.9		
230	1004	875	960	745	861	834	12.4					
220	861	764	834	657	745	704						
210	742	670	716	580	643	585						
200	631	582	625	521	557	507						
190	532	508	540	462	471	362						
180	459	441	462	406	403	278						
170	400	389	400	351	341	219						
160	353	340	346	300	291	179						
150	310	291	300	254	246	151						
140	272	251	265	219	216	129						
130	238	217	229	197	189	120						
120	222	204	209	186	171	113						
110	71.4	12.4	83.8	60.0	112	12.4						

ELECTRON DENSITY

PUERTO RICO 60 W 31 MAR 1959

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OUAL								S				A
HMIN	266	277	256	233	228	225	268	126	108	108	109	109
HMAX	378	379	348	324	381	347	390	293	312	318	331	331
SHMAX	999	838	720	618	675	475	490	859	1477	1864	2446	2555
KM												
390					698		608					
380	1393	1215			698		604					
370	1386	1207			693		591					
360	1355	1177			682		571					
350	1301	1125	1143		663	625	543					
340	1222	1050	1135		636	623	508				2465	2536
330	1131	950	1105	960	603	611	462				2465	2536
320	990	820	1050	959	561	588	412		1316	1876	2444	2514
310	834	679	969	941	517	557	348		1315	1868	2386	2455
300	661	524	854	901	465	513	278	1191	1308	1836	2294	2357
290	477	310	716	846	406	462	179	1190	1292	1777	2161	2227
280	179	49.6	557	764	348	403	63.6	1172	1265	1687	1996	2050
270	44.9		375	679	286	329	21.7	1131	1226	1578	1806	1866
260			83.8	573	219	255		1065	1180	1459	1601	1650
250				432	152	170		978	1129	1308	1383	1446
240				179	77.6	83.8		861	1057	1157	1182	1240
230					21.7	33.2		729	969	1004	990	1050
220								573	875	848	834	889
210								389	774	704	704	742
200								209	679	585	599	631
190								127	573	477	516	540
180								95.5	432	396	439	462
170								81.9	310	325	373	403
160								75.3	205	272	316	354
150								66.9	161	227	274	314
140								56.5	136	191	237	279
130								43.3	122	165	202	240
120									110	148	183	210
110									71.4	97.2	60.0	161

ELECTRON DENSITY

PUERTO RICO 60 W 31 MAR 1959

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OUAL												
HMIN	108	109	108	110	110	110	238	210	246	275	277	270
HMAX	343	354	358	360	360	384	391	369	396	405	403	379
SHMAX	2790	3009	3017	2847	2569	2807	2045	1622	1442	1367	1165	1142
KM												
410										1583	1473	
400							1969		1612	1581	1472	
390						2227	1969		1608	1558	1455	
380						2225	1959		1588	1513	1415	1612
370						2210	1934	1846	1548	1446	1353	1601
360		2790	2680	2465	2327	2178	1892	1836	1490	1351	1269	1563
350	2680	2787	2669	2451	2313	2129	1835	1804	1411	1240	1164	1498
340	2678	2753	2628	2409	2270	2063	1759	1748	1319	1111	1038	1404
330	2648	2681	2550	2339	2198	1978	1669	1669	1204	960	896	1291
320	2580	2571	2441	2233	2083	1882	1566	1566	1080	774	735	1143
310	2466	2413	2307	2103	1948	1760	1446	1446	917	591	557	960
300	2311	2237	2139	1954	1801	1626	1298	1298	754	362	375	735
290	2142	2032	1942	1786	1636	1487	1143	1143	573	143	179	477
280	1948	1810	1747	1620	1478	1341	990	960	403	46.5	40.2	97.2
270	1739	1593	1556	1446	1308	1191	814	754	219			
260	1534	1404	1362	1274	1127	1050	591	540	104			
250	1324	1208	1191	1127	975	903	335	346	40.2			
240	1127	1050	1035	990	834	768	49.6	198				
230	960	896	903	865	726	643		102				
220	824	774	784	754	634	540		53.1				
210	707	679	688	661	549	446						
200	608	591	599	580	477	368						
190	521	516	524	502	412	305						
180	453	457	454	437	353	254						
170	395	403	396	383	310	211						
160	348	357	348	325	266	176						
150	306	314	300	281	234	150						
140	269	274	259	237	204	131						
130	240	243	227	206	179	122						
120	209	226	208	189	165	115						
110	127	143	143	83.8	40.2	60.0						

TABLES OF IONOSPHERIC DATA

DECEMBER 1958 - OCTOBER 1956

Table 1

Bogota, Colombia (4.5°N, 74.2°W) December 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.5	200				2.5	3.10
01		8.45	205				2.1	3.05
02		>6.8	210		---	----	2.5	3.00
03		6.3	235		---	----	2.3	2.92
04		5.2	245				3.2	2.80
05		5.4	265				3.0	2.65
06		8.5	270		<151	1.80	3.0	2.90
07		12.8	245		111	2.80	3.0	3.08
08		14.25	230		109	3.45	3.5	3.10
09	---	14.5	220		105	3.85	4.0	2.90
10	---	14.0	215		105	4.05	4.3	2.75
11	(390)	14.0	215	---	105	4.20	4.3	2.65
12	410	13.6	215	7.1	105	4.20	4.5	2.58
13	425	13.4	220	6.6	105	4.15	4.5	2.48
14	410	13.4	220	6.3	105	4.00	4.3	2.50
15	395	13.1	235	---	109	3.75	4.3	2.50
16	---	12.9	240		111	3.30	4.1	2.55
17		12.55	255		(120)	2.60	4.4	2.60
18		12.8	265				4.5	2.70
19		12.55	250				4.0	2.80
20		12.95	250				3.2	2.75
21		13.5	230				2.8	2.72
22		14.95	225				2.5	2.95
23		14.5	215				2.0	3.05

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Bogota, Colombia (4.5°N, 74.2°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.5	205				2.4	3.00
01		9.35	210				1.5	3.05
02		7.0	210				2.0	2.90
03		5.75	230				2.4	2.70
04		5.25	250				2.5	2.80
05		5.15	<265				3.6	2.70
06		8.8	265		<145	2.08	2.5	2.98
07		12.4	245		111	3.00	3.6	3.02
08		14.45	230		109	3.55	4.0	3.00
09		15.0	220		107	3.90	4.5	2.90
10		14.8	220		107	4.10	4.2	2.75
11	(420)	14.3	215	---	107	4.20	4.4	2.65
12	400	14.1	225	(7.1)	105	4.20	4.6	2.60
13	415	14.0	(220)	(7.1)	105	4.15	4.4	2.50
14	420	13.9	(235)	(6.9)	106	3.92	4.6	2.50
15	(405)	13.9	(240)	---	105	3.60	5.0	2.50
16		13.6	(250)		107	3.12	4.8	2.50
17		14.0	<265		<115	2.45	4.8	2.60
18		14.8	275				4.5	2.70
19		15.5	280				4.1	2.70
20		(17.1)	260				3.4	(2.75)
21		18.3	230				2.6	2.88
22		17.35	220				2.4	2.95
23		15.6	215				3.0	3.05

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Talara, Peru (4.6°S, 81.3°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>12.0	275				4.5	(2.62)
01		11.0	250				4.6	2.70
02		10.0	240				4.6	2.90
03		9.0	230				4.7	3.00
04		7.6	225				4.3	3.10
05		6.4	225				4.0	3.20
06		6.8	270		---	----	4.2	2.85
07		11.0	250		115	2.75	4.5	2.90
08		13.6	235		111	3.40	4.7	2.75
09		14.9	230		111	3.90	4.0	2.60
10		15.1	220		109	4.15	4.7	2.45
11		15.0	210		109	4.30	4.6	2.30
12	---	15.0	210		109	4.30		2.20
13	---	15.0	210		109	4.30	4.5	2.18
14	---	15.0	210		109	4.15	4.7	2.15
15	---	(15.0)	220		107	3.90	5.9	(2.10)
16	---	14.7	(235)		109	3.45	6.0	2.10
17		(13.7)	260		111	(3.00)	5.8	(2.15)
18		13.0	290		113	2.10	4.5	2.20
19		(13.0)	310				3.2	(2.35)
20		(12.5)	365				3.0	(2.18)
21		(12.7)	335				2.4	(2.30)
22		>13.0	290				3.1	(2.42)
23		13.2	280				4.5	2.55

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Chimbote, Peru (9.1°S, 78.6°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>9.0	310				3.8	(2.50)
01		(9.4)	295				3.7	(2.65)
02		8.8	255				3.2	2.78
03		8.5	235				3.0	3.00
04		7.3	220				3.0	3.10
05		6.15	220				4.0	3.10
06		8.0	275		(131)	2.05		2.90
07		11.7	250		119	3.00	6.1	2.65
08		13.55	235		119	3.50	7.1	2.70
09		14.55	230		117	3.95	7.3	2.50
10		14.8	220		117	4.20	8.0	2.30
11	---	15.0	220		117	4.30	8.0	2.25
12	---	14.85	<220		117	(4.35)	7.6	2.15
13	---	14.5	215	---	115	4.30	7.9	2.10
14	---	14.35	215		117	(4.20)	8.0	2.10
15	---	13.45	225		116	(3.90)	8.0	2.10
16		12.65	240		115	(3.40)	8.0	2.10
17		12.25	265		117	(2.95)	6.0	2.10
18		>11.6	300		<149	2.08	4.6	(2.15)
19		11.05	360					2.15
20		>10.0	410					2.05
21		9.3	395					2.05
22		9.6	380				2.0	(2.20)
23		>9.15	330				2.2	2.32

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Ellsworth (77.7°S, 41.1°W) November 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	410	9.0	290	(4.0)	119	2.25		2.35
01	415	9.3	280	(3.9)	111	2.30	2.3	2.32
02	405	8.8	285	(4.0)	109	2.40	2.6	2.30
03	410	9.35	275	4.2	109	2.55	2.7	2.30
04	<435	8.8	265	4.4	105	2.60		2.30
05	435	8.6	255	4.5	105	2.88		2.25
06	430	8.4	245	4.7	103	2.90		2.32
07	430	8.2	240	4.9	101	3.00		2.35
08	430	7.5	240	5.0	103	3.10		2.40
09	460	7.4	235	5.1	101	3.28		2.40
10	470	7.3	235	5.2	101	3.30		2.45
11	455	7.05	230	5.3	101	3.40		2.50
12	450	7.2	230	5.4	101	3.35		2.50
13	480	7.0	235	5.3	101	3.32		2.50
14	470	7.1	230	5.1	101	3.25		2.55
15	450	7.4	240	5.1	101	3.15		2.62
16	---	7.4	240	---	101	3.00		2.60
17	---	7.65	245	---	105	2.90		2.60
18	---	7.95	250	---	105	2.78		2.65
19	---	8.15	260	---	107	2.60		2.60
20	---	8.35	260	---	109	2.52		2.60
21	---	8.55	270	---	111	2.40		2.55
22	---	8.8	275	---	115	2.30		2.50
23	(385)	9.0	280	---	117	2.25		2.40

Time: 45.0°W.
Sweep: 1.4 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Ellsworth (77.7°S, 41.1°W) September 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.5)	385				2.5	(2.40)
01		(6.6)	355				2.3	(2.40)
02		(6.55)	330		---	----		(2.35)
03		(6.7)	<320		---	----		2.40
04		(7.0)	310		---	E		(2.45)
05		7.0	280		---	E		2.50
06		7.2	265		137	1.90		2.55
07		7.1	250		119	2.20		2.72
08		7.85	245		115	2.30		2.85
09		8.75	240		119	2.50		2.90
10		9.35	235		115	2.60		2.95
11		9.9	235	---	112	2.60		3.00
12	---	10.35	230	---	111	2.65		3.00
13	---	10.4	230	---	115	2.60		3.00
14	---	10.85	230	---	115	2.50		3.00
15	---	11.2	235		119	2.30		3.05
16	---	11.0	230		125	2.10		3.05
17		10.0	235		141	1.90		3.08
18		9.65	230		---	E		3.05
19		9.1	235		---	E		2.95
20		8.25	240		---	----		2.88
21		8.0	255		---	----		2.75
22		7.4	325					2.55
23		(6.8)	340					(2.50)

Time: 45.0°W.
Sweep: 1.4 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Lycksele, Sweden (64.6°N, 18.8°E) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.5	320				3.1	2.4
01		5.6	320		---	E	3.0	2.4
02		5.3	340		---	E	3.0	2.4
03	---	5.3	320	----	115	1.30	2.9	2.4
04	(345)	5.6	290	3.00	105	1.80	3.2	2.6
05	390	5.8	265	4.00	100	2.20	3.3	2.6
06	380	6.2	250	4.50	100	2.70	2.8	2.6
07	390	6.6	245	4.80	105	2.95	3.5	2.6
08	375	7.0	230	5.20	105	3.20	3.9	2.6
09	420	7.2	230	5.30	105	3.40	3.6	2.6
10	400	7.4	220	5.60	105	3.50	3.8	2.6
11	400	7.6	215	5.65	105	3.55	3.8	2.6
12	400	7.8	220	5.70	105	3.60	3.9	2.6
13	390	7.6	225	5.70	105	3.55	3.9	2.6
14	385	7.5	225	5.55	105	3.45	3.6	2.6
15	390	7.4	230	5.40	105	3.30		2.6
16	370	7.4	235	5.20	105	3.10		2.7
17	325	7.4	250	4.70	105	2.80	3.6	2.7
18	---	7.5	255	----	105	2.40	3.6	2.8
19	---	7.2	260	----	105	1.90	2.7	2.8
20		7.0	270		110	1.45	2.2	2.7
21		6.5	280		---	E	2.0	2.6
22		6.0	295		---	E	1.8	2.6
23		5.8	300		---	E	2.4	2.45

Time: 15.0°E.
Sweep: 0.33 Mc to 20.0 Mc in 3 minutes.

Table 8

Churchill, Canada (58.8°N, 94.2°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.7	350				5.8	
01		5.2	310		---	---	4.8	
02		5.0	310		---	---	4.8	
03		(5.0)	330		---	1.8	4.5	
04		4.9	320		125	1.9	4.2	
05	---	5.0	300	---	130	2.3	4.2	
06	(530)	5.2	270	4.0	120	2.8	4.3	---
07	500	5.6	260	4.4	110	3.2	4.1	G
08	610	5.8	240	4.7	110	3.4	4.4	---
09	520	6.3	240	5.0	100	3.7	4.7	(2.5)
10	480	6.5	240	5.2	105	3.9	4.3	(2.5)
11	480	7.0	230	5.3	105	3.8	4.6	2.5
12	470	7.0	220	5.4	105	3.9	4.6	2.5
13	470	7.0	220	5.4	105	3.8	4.1	2.5
14	480	7.0	220	5.3	110	3.8	4.2	2.5
15	460	7.3	230	5.2	110	3.6	4.2	2.4
16	460	7.2	230	5.1	110	3.4	4.3	2.4
17	420	7.5	240	5.0	110	3.2	4.2	(2.5)
18	400	7.2	260	4.6	110	3.0	3.1	(2.6)
19	---	7.0	300	---	115	2.8	4.0	(2.6)
20		6.4	310		120	2.5	3.7	---
21		5.8	340		120	2.4	6.7	
22		5.5	330		---	1.8	7.0	
23		5.8	240		---	---	7.0	

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 9

Ibadan, Nigeria (7.4°N, 3.9°E) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.5)	370					----
01		(6.6)	330					----
02		(6.6)	290					----
03		(7.0)	245					(3.15)
04		(6.4)	220					3.35
05		4.7	220					3.25
06		8.1	260		135	2.20	2.8	3.10
07		>11.4	240		110	3.15		3.15
00		13.0	230		105	3.65	6.8	2.95
09		13.3	215		105	4.05	7.9	2.70
10		13.7	215		105	•(4.30)	8.6	2.40
11		13.2	210		105	(4.45)	8.8	2.20
12		12.2	205		105	(4.45)	8.3	2.05
13		11.4	205		105	(4.35)	8.7	2.05
14		11.2	200		105	4.20	8.7	2.05
15		11.0	205		105	3.95	8.3	2.05
16		10.9	235		105	3.50	6.7	2.10
17		(10.9)	255		110	2.90		(2.15)
18		(10.6)	295		---	1.85		(2.20)
19		>9.0	415		---	-----		(2.05)
20		(7.6)	490					<2.10
21		(6.9)	485					----
22		(6.6)	440					
23		(6.4)	415				0.9	

Time: 0.0°.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 10

Bogota, Colombia (4.5°N, 74.2°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.65	255				2.2	2.85
01		8.9	245				1.9	2.80
02		8.4	255				2.0	2.90
03		7.9	250					2.95
04		6.75	240				2.2	3.10
05		5.7	235				2.2	3.00
06		6.4	270		(135)	1.95	2.6	2.85
07		8.4	240		109	2.90		3.05
08		9.25	225		109	3.60		2.75
09		10.4	220		107	3.95		2.45
10	---	11.6	220		107	4.20		2.40
11	(420)	12.4	215	(6.5)	108	4.30		2.45
12	435	13.0	215	6.8	109	4.35	4.6	2.45
13	430	13.5	215	(6.4)	109	4.30	4.6	2.50
14	430	13.7	<220	6.6	107	4.15	5.0	2.50
15	430	13.25	(235)	(6.5)	108	3.90	4.7	2.48
16	415	12.8	<245	---	109	3.50	4.5	2.45
17		12.9	(255)		111	2.90	4.6	2.50
18		12.9	285		<141	(1.98)	4.0	2.50
19		12.8	300				4.0	2.60
20		(12.85)	290				3.3	(2.55)
21		12.5	265				2.8	2.65
22		12.5	265				2.5	2.80
23		11.5	260				2.4	2.80

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Rarotonga I. (21.2°S, 159.8°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.4	250				1.4	2.80
01		8.1	240					2.80
02		7.4	240					2.80
03		5.7	240					2.60
04		4.9	270					2.60
05		4.8	280					2.60
06		7.0	290		(120)	1.5		2.75
07		11.8	250		120	2.7		3.00
00		13.4	250		110	3.4		2.95
09	---	14.7	240		110	3.7		2.90
10	(280)	14.0	230		110	4.0		2.85
11	(340)	13.0	220		110	4.1		2.65
12	350	12.6	210	---	110	4.1		2.60
13	350	12.5	210	---	110	4.1	4.4	2.55
14	390	12.3	230	---	110	3.9	4.4	2.50
15	370	(12.2)	240		110	3.6	4.0	(2.55)
16	---	(12.1)	250		115	3.1	3.4	(2.60)
17		(12.7)	270		130	2.2	2.7	(2.60)
18		(12.9)	260				2.6	(2.60)
19		(12.0)	270				3.0	(2.50)
20		(11.2)	250				3.2	----
21		----	250				2.4	----
22		(9.2)	240				1.4	(2.55)
23		(9.5)	250					(2.75)

Time: 165.0°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 12

Ellsworth (77.7°S, 41.1°W) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(2.3)	430				2.8	(2.25)
01		(3.1)	400				2.7	(2.25)
02		(3.9)	400				3.0	(2.30)
03		(4.6)	(430)				3.2	(2.30)
04		(4.5)	355				3.0	(2.35)
05		4.9	<315				2.7	2.40
06		(4.5)	300		---	----		(2.50)
07		(4.9)	260		---	----	1.9	(2.60)
08		(5.4)	250		---	----		(2.70)
09		5.7	240		---	----		2.98
10		6.7	230		(139)	1.90		3.08
11		7.8	230		<139	1.90		3.10
12		8.5	225		(121)	1.98		3.15
13		8.35	215		129	1.85		3.10
14		8.3	220		---	1.55		3.15
15		7.6	220		---	----		3.15
16		6.9	225		---	----		3.15
17		(5.3)	230		---	----		3.18
18		3.85	240					3.02
19		(2.9)	265					(2.80)
20		(2.6)	300					(2.75)
21		2.35	360					2.52
22		(2.3)	410				1.6	(2.35)
23		(2.4)	410				3.7	(2.30)

Time: 45.0°W.
Sweep: 1.4 Mc to 25.0 Mc in 13.5 seconds.

Table 13

Scott Base (77.8°S, 166.8°E) August 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.9)	270		---	---	<2.1	(2.60)
01		4.6	260		---	---	<1.7	2.45
02		4.6	260		---	---	<2.4	2.50
03		(4.3)	280		---	---	2.3	(2.55)
04		(4.5)	270		---	---	3.8	(2.50)
05		(4.4)	260		---	---	<2.6	(2.55)
06		(4.6)	250		---	---	2.5	(2.55)
07		(5.2)	250		---	1.5	<2.1	2.70
08		(5.4)	240		---	---	<1.8	(2.65)
09		5.9	240		---	1.7	2.1	2.70
10		6.8	240		---	1.6	<2.3	2.70
11		7.5	240		105	1.6	2.2	2.80
12		7.2	250		110	1.6	<2.8	2.80
13		7.2	250		110	1.5	2.7	2.70
14		7.8	240		115	1.6	<2.9	2.70
15		7.8	250		135	1.4	<2.8	2.70
16		8.7	250		---	---	<1.5	2.70
17		8.4	250		---	---	<1.7	2.70
18		8.3	250		---	---	<1.4	2.55
19		8.2	250		---	---	<1.2	2.60
20		8.1	250		---	---	<1.6	2.50
21		6.0	250		---	---	<1.3	2.50
22		6.6	250		---	---	<1.1	2.50
23		(5.2)	270		---	---	<1.1	(2.45)

Time: 165.0°E.

Table 14

Kiruna, Sweden (67.8°N, 20.3°E) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.2)	(320)		---	---	4.1	(2.5)
01	---	5.0	365	---	---	---	3.8	2.6
02	460	5.0	(360)	3.2	---	---	4.0	2.4
03	450	5.2	(275)	3.4	---	2.4	3.7	2.4
04	505	5.1	260	3.8	105	2.5	3.0	2.5
05	470	5.2	250	4.1	105	2.8		2.4
06	490	5.5	235	4.5	105	3.0		2.4
07	480	5.8	230	4.6	105	3.0		2.4
08	475	6.3	220	5.0	100	3.2		2.4
09	475	6.2	220	5.0	100	3.2		2.5
10	490	6.4	220	5.1	100	3.2		2.4
11	480	6.5	220	5.2	100	3.3		2.4
12	450	6.5	215	5.2	100	3.3		2.5
13	470	6.4	220	5.2	100	3.2		2.5
14	495	6.2	220	5.2	100	3.2		2.5
15	490	6.1	220	5.0	100	3.2		2.5
16	440	6.0	225	5.0	105	3.1		2.6
17	410	6.0	245	4.6	105	3.0		2.6
18	---	6.0	250	4.6	110	2.8		2.7
19	---	5.7	270	---	110	2.7	3.2	2.65
20	---	5.9	275	---	110	2.2	3.2	2.6
21	---	5.5	320	---	110	2.0	3.2	2.6
22		5.4	330		---	1.8	4.0	2.6
23		5.2	350		---	---	4.0	2.55

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 15

Lycksele, Sweden (64.6°N, 18.8°E) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	5.5	330	----	110	1.40	3.5	2.4
01	(370)	5.4	330	2.50	---	1.60	3.0	2.4
02	410	5.5	330	2.90	105	1.65	3.2	2.4
03	380	5.4	295	3.30	105	1.90	3.7	2.5
04	380	5.7	255	3.75	105	2.20	3.4	2.5
05	410	5.6	250	4.20	105	2.55	3.4	2.5
06	450	5.6	240	4.50	105	2.85	3.4	2.5
07	465	6.1	230	4.85	105	3.10	3.6	2.5
08	450	6.4	230	5.05	105	3.35	4.0	2.5
09	460	6.6	225	5.20	105	3.50	3.8	2.5
10	440	6.7	225	5.30	105	3.60	4.0	2.5
11	460	6.8	215	5.40	105	3.65	4.4	2.5
12	450	6.9	215	5.40	105	3.65	3.9	2.5
13	460	6.8	215	5.50	105	3.65	3.6	2.5
14	460	6.6	220	5.40	105	3.55		2.5
15	435	6.6	215	5.25	105	3.45		2.5
16	430	6.7	230	5.15	105	3.35		2.6
17	380	6.6	240	5.00	105	3.10	3.7	2.6
18	355	6.4	250	4.55	105	2.80	3.6	2.7
19	350	6.3	260	4.20	105	2.50	3.7	2.7
20	(340)	6.3	270	3.60	105	2.10	3.0	2.7
21	(335)	5.9	290	----	110	1.80	2.6	2.6
22	---	5.9	310	----	110	1.50	2.9	2.5
23	---	5.8	315	----	115	1.40	2.9	2.5

Time: 15.0°E.
Sweep: 0.35 Mc to 20.0 Mc in 3 minutes.

Table 16

Lindau/Harz, Germany (51.6°N, 10.1°E) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.41	300					2.48
01		6.90	305					2.45
02		6.54	309				2.3	2.46
03		6.05	298		---	----	2.4	2.46
04		5.72	312		---	E	2.8	2.50
05	---	6.12	272	----	104	----	3.2	2.56
06	(430)	6.59	246	4.42	104	2.60	3.9	2.64
07	396	7.02	232	4.80	102	3.07	4.3	2.62
08	380	7.45	229	5.20	102	3.38	4.8	2.62
09	430	7.64	218	5.50	102	3.56	4.8	2.56
10	445	7.77	213	5.75	102	3.76	5.0	2.54
11	422	7.75	212	5.66	102	3.88	5.0	2.54
12	430	7.80	218	6.00	100	3.88	5.0	2.54
13	450	7.75	215	5.94	102	3.94	4.8	2.48
14	439	7.74	220	5.79	102	3.91	4.9	2.58
15	431	7.41	222	5.65	102	3.87	4.8	2.56
16	425	7.60	220	5.50	103	3.64	4.5	2.58
17	400	7.55	231	5.18	103	3.37	4.4	2.67
18	---	7.74	236	----	104	3.02	4.3	2.71
19		7.70	251		108	2.54	4.1	2.75
20		7.77	273		112	1.65	3.6	2.76
21		7.85	273		---	E	3.2	2.66
22		7.76	276		---	----		2.56
23		7.61	294				2.3	2.51

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 17

Leopoldville, Belgian Congo (4.4°S, 15.2°E) July 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	10.6					3.0	2.71
01	220	8.8					3.2	2.69
02	230	7.1					3.3	2.69
03	235	6.0					3.0	2.69
04	245	5.2					3.0	2.71
05	280	6.2	---	---	---	---	2.8	2.68
06	270	10.2	250	---	120	2.6	3.5	2.84
07	270	12.6	240	---	110	3.4	4.2	2.82
08	280	12.6	230	---	110	3.7	4.7	2.71
09	300	13.1	240	---	110	4.0	5.0	2.61
10	325	12.7	250	---	110	4.0	4.6	2.48
11	385	12.7	250	---	110	---		2.31
12	420	12.8	260	6.5	110	---		2.23
13	435	13.6	250	6.1	110	4.0	4.0	2.16
14	425	14.0	250	6.0	110	3.7	4.4	2.18
15	395	14.0	250	---	110	3.3	4.2	2.22
16	350	14.1	260	---	120	2.7	3.7	2.28
17	270	15.0	---	---	---	---	3.3	2.42
18	270	15.6					3.2	2.52
19	265	15.2					3.0	2.62
20	220	(16.6)					2.5	(2.69)
21	220	>15.6					3.0	(2.64)
22	220	15.1					3.0	<2.71
23	220	12.9					2.7	2.79

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 18

Chiclayo, Peru (6.8°S, 79.8°W) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.65	235					2.85
01		8.65	235					2.88
02		8.35	240					3.00
03		7.4	240					3.10
04		6.55	235					2.98
05		5.7	250					2.90
06		4.8	255					2.80
07		7.2	270		<133	2.28		2.78
08		9.0	245		115	3.05		2.80
09		>9.0	230		113	3.50	3.7	2.65
10		9.2	220		113	3.82		2.55
11	---	(9.45)	220	---	112	4.00		(2.38)
12	---	(9.8)	215	---	115	4.10		(2.28)
13	---	(9.5)	215	---	111	(4.10)		(2.25)
14	(510)	9.5	215	6.0	111	(4.00)		(2.22)
15	---	>9.0	210	---	111	3.80		(2.15)
16		>9.0	225		113	3.40		(2.15)
17		>9.0	245		<119	2.90		(2.15)
18		>9.0	290		<147	2.12	2.6	(2.15)
19		9.0	360				2.2	2.10
20		8.85	365					2.15
21		>9.0	310					2.35
22		9.0	260					(2.60)
23		8.65	240					2.70

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 19

Elisabethville, Belgian Congo (11.6°S, 27.5°E) July 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	4.8					2.5	2.64
01	260	3.6					2.0	2.58
02	260	2.8					2.5	2.68
03	265	2.6					2.6	2.75
04	260	3.6			---	---	1.8	2.42
05	250	8.6	---	---	125	2.1	3.0	2.92
06	250	11.0	240	---	110	3.0		2.94
07	260	11.8	230	---	110	3.5		2.90
08	270	11.7	230	---	110	3.9		2.73
09	285	11.5	235	---	110	4.0	4.3	2.62
10	320	11.2	250	---	110	4.0	4.8	2.52
11	330	11.2	250	---	110	4.0		2.45
12	360	11.0	245	6.0	105	3.9		2.36
13	370	11.0	240	6.0	110	3.7	4.0	2.34
14	340	11.2	250	---	110	3.3	4.0	2.39
15	280	11.4	260	---	120	2.7	4.0	2.48
16	260	11.5	---	---	---	---	3.9	2.62
17	240	11.1					3.4	2.75
18	230	>10.6					3.0	2.86
19	225	9.4					3.0	2.72
20	230	8.8					3.1	2.78
21	230	7.4					2.6	2.69
22	230	6.1					2.5	2.67
23	235	5.7					2.0	2.63

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 20

Watheroo, W. Australia (30.3°S, 115.9°E) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.2	(245)					3.10
01		4.1	<250					3.10
02		>4.0	<245					3.10
03		4.0	<250					3.15
04		3.8	245					3.15
05		3.7	<240					3.10
06		3.5	240					3.10
07		(5.2)	230		160	1.60		3.25
08		>8.4	200		100	2.10		<3.60
09		>8.4	200		100	3.00		----
10		>8.4	200		100	3.35		----
11		>8.4	200		100	3.55		
12		>8.4	210		100	3.70		----
13		>8.4	210		100	3.65		<3.25
14		>8.4	210		100	3.55		----
15		>8.4	210		100	3.30		<3.00
16		>8.4	215		100	3.00	3.1	(3.20)
17		>8.4	215		100	2.10		----
18		>8.4	(200)				3.4	----
19		(6.9)	200				1.8	<3.45
20		6.8	210				2.1	3.35
21		5.2	210					3.25
22		4.9	(230)					3.15
23		4.3	240					3.20

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 21

Capetown, Union of S. Africa (34.1°S, 18.3°E) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		2.6	<335				<1.8	2.60
01		2.8	<335				<1.9	2.65
02		2.8	<330				<1.9	2.60
03		2.9	<310				<1.8	2.75
04		2.9	<295				<1.8	2.80
05		2.7	<305				<1.8	2.70
06		2.7	<340				<1.8	2.70
07		2.7	<290				<1.8	2.80
00		6.3	240			<2.0		3.15
09		9.1	240			2.8		3.20
10	---	10.1	240			3.1		3.10
11	---	>10.6	240			---		3.00
12	(250)	11.0	(245)			---		2.90
13	---	11.5	(245)			---		2.80
14	(255)	>11.5	(235)			---	(3.9)	2.80
15	---	(11.2)	235	---		---		2.80
16	---	>10.8	245			3.0		2.85
17		>10.6	240			2.6		2.95
18		(9.8)	225			<2.0	<2.1	3.00
19		>7.1	220				<1.9	3.10
20		5.9	<230				<1.9	3.10
21		>3.8	<240				<1.9	3.10
22		2.9	<260				<1.9	3.00
23		2.6	<310				<1.9	2.80

Time: 30.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 22

Ellsworth (77.7°S, 41.1°W) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.0)	(410)				3.7	(2.45)
01		(4.1)	420				3.7	(2.40)
02		(3.3)	400				3.0	(2.45)
03		(4.1)	360				3.0	(2.45)
04		(4.3)	355				2.0	(2.50)
05		(4.6)	300				2.7	(2.52)
06		(4.5)	300					(2.58)
07		(4.1)	280					(2.65)
08		(3.7)	260					(2.88)
09		(3.55)	250					(2.98)
10		(3.6)	<260					(3.00)
11		4.2	235					3.00
12		4.9	225					3.02
13		(4.9)	225					(3.20)
14		5.0	235					3.10
15		(4.15)	230					(3.25)
16		3.4	245					3.22
17		(2.7)	275					(2.95)
18		2.3	300					2.85
19		(1.95)	355					(2.60)
20		1.9	<395					2.60
21		2.0	405					2.40
22		(2.2)	410				1.8	2.42
23		(2.55)	410				3.6	(2.40)

Time: 45.0°W.
Sweep: 1.4 Mc to 25.0 Mc in 13.5 seconds.

Table 23

Scott Base (77.8°S, 166.8°E) July 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.8	270		---	---	<1.2	2.55
01		3.6	<280		---	---	<1.2	2.50
02		(3.5)	290		---	---	<1.2	2.45
03		(4.0)	280		---	---	<1.2	(2.50)
04		(4.5)	280		---	---	<1.1	(2.50)
05		(3.2)	270		---	---	<1.2	(2.75)
06		(3.3)	260		---	---		(2.60)
07		(4.4)	250		---	---	<1.2	(2.65)
08		(3.7)	260		---	---	<1.2	(2.60)
09		(4.6)	250		---	---	<1.4	2.60
10		5.3	240		---	---	<1.7	2.65
11		5.3	240		---	---	2.6	2.65
12		6.1	250		---	---	2.6	2.65
13		6.4	240		---	---	2.6	2.65
14		6.4	250		---	---	2.7	2.65
15		7.0	250		---	---	<2.2	2.65
16		7.0	<250		---	---	1.6	2.60
17		6.8	260		---	---	1.7	<2.55
18		7.0	250		---	---	<1.2	2.65
19		6.6	250		---	---	<1.2	2.50
20		5.9	250		---	---	<1.2	2.70
21		5.9	250		---	---	<1.2	2.70
22		(5.2)	260		---	---	<1.1	(2.50)
23		3.8	250		---	---	<1.2	2.60

Time: 165.0°E.

Table 24

Tromso, Norway (69.7°N, 19.0°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	5.6	(320)	----	---	----	4.1	2.30
01	(515)	5.7	---	----	---	----	4.0	2.30
02	---	5.8	(290)	----	---	----	4.4	2.40
03	(445)	5.8	(260)	(3.85)	---	2.50	4.0	2.40
04	450	6.4	270	4.10	105	3.00	3.3	2.50
05	450	6.2	255	4.50	105	2.90	3.0	2.40
06	505	6.2	245	4.60	105	3.05		2.40
07	500	6.4	245	4.90	105	3.20		2.35
00	560	6.4	245	5.00	105	3.40		2.30
09	560	6.5	245	5.05	100	3.50		2.35
10	530	6.6	240	5.20	100	3.60		2.40
11	530	6.5	240	5.30	105	3.60	3.7	2.40
12	535	6.4	230	5.30	100	3.65		2.40
13	550	6.4	235	5.25	105	3.70		2.40
14	535	6.3	225	5.25	100	3.60		2.40
15	545	6.2	240	5.15	105	3.50		2.40
16	485	6.3	245	5.00	100	3.40		2.40
17	---	6.3	250	----	105	3.20		2.50
18	(450)	6.4	260	4.70	105	3.50	3.8	2.55
19	(455)	6.2	275	4.30	105	3.10	4.0	2.55
20	---	5.9	(280)	----	100	----	4.0	(2.55)
21	---	6.0	300	----	105	2.80	4.2	2.55
22	(350)	5.9	(350)	----	---	----	4.0	2.55
23	(315)	5.8	(300)		---	----	3.6	2.55

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 25

Sodankyla, Finland (67.4°N, 26.6°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs.	(M3000)F2
00		6.4	360		---	----	4.1	2.55
01		(6.2)	395		---	----	4.6	(2.45)
02		(6.3)	370		---	----	4.3	(2.45)
03		(6.0)	315		---	----	4.0	(2.35)
04		6.6	260		110	2.55	4.5	2.50
05		6.4	250		105	2.80	5.0	2.50
06		6.3	245		105	3.00	5.0	2.45
07		6.4	240	4.7	100	3.20	5.4	2.30
08		6.5	230	4.8	100	3.30	5.4	2.30
09		6.9	220	5.0	100	3.50	5.3	2.30
10		6.8	220	5.0	100	3.60	5.8	2.30
11		6.6	220	5.0	100	3.60	5.4	2.30
12		6.6	225	5.2	100	3.70	5.3	2.40
13		6.5	220	5.1	100	3.70	5.8	2.40
14		6.5	220	---	100	3.60	5.6	2.40
15		6.5	220	5.2	100	3.55	5.4	2.40
16		6.5	230	5.0	100	3.50	4.8	2.40
17		6.5	230	---	105	3.30	5.0	2.50
18		6.5	250		110	3.10	4.8	2.60
19		6.6	250		110	2.90	4.0	2.65
20		6.6	260		110	2.65	4.0	2.65
21		6.5	285		120	2.50	4.0	2.60
22		6.0	330		---	E	3.8	2.60
23		6.2	355		---	E	3.9	2.55

Time: 30.0°E.
Sweep: 1.4 Mc to 22.0 Mc in 8 minutes, automatic operation.

Table 26

Lycksele, Sweden (64.6°N, 18.8°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.3	335		110	1.45	3.6	2.35
01	(340)	6.2	325	2.50	110	1.50	3.7	2.3
02	350	6.3	305	3.00	105	1.70	4.1	2.3
03	365	6.3	275	3.50	105	2.10	4.2	2.3
04	380	6.4	265	4.05	105	2.35	4.0	2.35
05	420	6.4	250	4.50	105	2.80	4.1	2.4
06	460	6.4	240	4.70	105	3.00	3.7	2.3
07	485	6.4	230	4.90	105	3.20	3.9	2.2
08	465	6.8	220	5.10	105	3.40	4.5	2.4
09	480	6.7	230	5.25	105	3.45	4.2	2.4
10	485	6.7	230	5.30	105	3.55	4.0	2.3
11	500	6.7	220	5.40	105	3.65	4.2	2.3
12	500	6.7	220	5.45	105	3.70	4.4	2.3
13	485	6.6	220	5.40	105	3.65	4.2	2.4
14	480	6.7	225	5.40	105	3.55	4.4	2.35
15	470	6.5	230	5.30	105	3.50	4.5	2.4
16	445	6.7	235	5.20	105	3.35	4.2	2.4
17	410	6.6	240	5.00	105	3.10	4.9	2.4
18	370	6.7	245	4.80	105	2.85	4.8	2.6
19	350	6.5	255	4.20	105	2.60	4.0	2.5
20	(315)	6.7	265	3.60	105	2.15	3.6	2.5
21	(330)	6.5	285	3.35	110	1.80	3.0	2.4
22	---	6.2	320	----	110	1.45	3.2	2.4
23		6.4	325		110	1.40	3.4	2.4

Time: 15.0°E.
Sweep: 0.33 Mc to 20.0 Mc in 3 minutes.

Table 27

Baker Lake, Canada (64.3°N, 96.0°W) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.6	290		130	1.8	4.9	
01		5.4	300		120	1.8	4.1	
02		5.3	300		130	1.9	4.2	
03	---	5.4	290	---	120	2.0	4.0	
04	(450)	5.1	270	3.6	120	2.2	4.4	
05	500	5.3	240	4.0	120	2.6	5.2	----
06	500	5.2	230	4.3	110	3.0	5.2	----
07	510	5.4	230	4.6	110	3.3	5.2	G
08	580	5.5	220	4.7	110	3.5	5.7	G
09	560	5.5	220	4.8	105	3.7	5.2	G
10	600	5.7	220	5.0	105	3.8	6.0	G
11	550	6.0	220	5.0	105	3.9	6.0	(2.3)
12	510	6.3	220	5.2	105	3.9	5.5	(2.35)
13	500	6.8	220	5.2	105	3.9	5.2	(2.5)
14	480	6.8	210	5.1	105	3.8	5.0	(2.45)
15	460	6.6	210	5.0	105	3.8		----
16	480	6.4	210	5.0	105	3.6		----
17	480	6.4	220	4.8	110	3.4	5.0	----
18	440	6.4	220	4.7	110	3.2	4.0	----
19	440	6.2	230	4.4	110	3.0	4.6	----
20	450	6.0	260	3.8	120	2.6	6.0	----
21	---	6.1	270	---	120	2.2	5.6	----
22		6.2	280		130	2.0	5.2	
23		6.1	280		120	1.8	4.3	

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 28

Oslo, Norway (60.0°N, 11.1°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.6	315					2.40
01		6.9	325				1.6	2.40
02		6.6	340		---	1.40	1.4	2.40
03	---	6.6	320		115	1.70		2.50
04	(610)	6.7	270	3.15	115	2.15	2.5	2.55
05	G	6.6	255	3.80	110	2.60	2.9	2.55
06	600	6.6	250	4.35	110	2.90	2.9	2.55
07	525	6.7	240	4.70	110	3.15	3.4	2.40
08	505	6.7	240	5.05	100	3.40		2.40
09	520	6.8	240	5.20	100	3.55	4.0	2.40
10	500	6.9	230	5.30	100	3.70	4.1	2.40
11	505	7.0	235	5.40	100	3.80	4.0	2.40
12	530	6.9	235	5.50	100	3.80		2.40
13	520	6.9	240	5.50	100	3.80	3.8	2.40
14	500	6.9	240	5.50	105	3.80		2.40
15	510	6.8	235	5.35	105	3.75		2.40
16	480	6.9	240	5.20	105	3.60		2.40
17	480	7.0	250	5.20	105	3.35	3.8	2.55
18	---	7.0	250	----	110	3.10	3.6	2.55
19	---	7.0	250	----	110	2.70	3.6	2.55
20	---	6.9	270	----	110	2.30	3.0	2.55
21		6.8	290		115	1.95	2.1	(2.55)
22		6.5	300		---	----	1.4	2.55
23		6.4	310		---	----	1.4	2.45

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 29

Upsala, Sweden (59.8°N, 17.6°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.8	305		---	E	3.2	2.5
01		6.4	315		---	E	3.2	2.5
02	---	6.4	325	----	125	1.30	3.2	2.5
03	370	6.6	290	3.00	---	1.60	3.7	2.5
04	380	6.7	260	3.80	105	2.30	4.5	2.6
05	390	6.7	240	4.40	105	2.65	5.1	2.6
06	410	6.8	240	4.80	105	3.00	4.9	2.6
07	460	7.0	240	5.00	105	3.25	5.0	2.5
08	460	6.9	225	5.20	100	3.45	5.0	2.5
09	465	7.0	230	5.30	100	3.60	5.1	2.5
10	460	7.2	220	5.50	100	3.70	5.2	2.5
11	490	7.0	215	5.50	100	3.75	5.4	2.5
12	500	7.0	215	5.50	100	3.80	5.2	2.5
13	480	7.0	220	5.60	100	3.80	5.3	2.5
14	490	6.8	220	5.50	100	3.70	4.9	2.5
15	460	6.8	225	5.45	100	3.60	5.0	2.55
16	425	7.0	230	5.30	100	3.50	4.8	2.6
17	400	7.0	240	5.20	105	3.25	4.7	2.7
18	355	7.0	250	4.70	105	2.90	5.1	2.7
19	325	7.0	255	4.00	110	2.50	4.4	2.7
20	---	7.0	270	----	110	2.00	3.8	2.8
21		7.0	290	----	110	1.50	3.2	2.7
22		7.0	290		---	1.05	2.5	2.7
23		7.0	300		---	E	2.4	2.5

Time: 15.0°E.
Sweep: 0.33 Mc to 20.0 Mc in 6 minutes, automatic operation.

Table 30

Lindau/Harz, Germany (51.6°N, 10.1°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.65	301					2.45
01		7.06	308					2.43
02		6.90	303					2.44
03		6.60	318		---	----	2.2	2.44
04		6.55	304		---	1.36	2.8	2.48
05	---	7.07	263	----	111	2.18	3.2	2.55
06	435	7.30	244	4.35	106	2.78	4.0	2.55
07	450	7.56	235	4.80	103	3.15	4.5	2.57
08	428	7.86	228	5.28	101	3.44	5.0	2.53
09	410	7.85	226	5.60	100	3.64	5.3	2.56
10	438	7.58	219	5.70	100	3.76	5.1	2.45
11	452	7.74	210	5.80	100	3.88	5.2	2.46
12	475	7.78	220	5.80	100	4.00	5.2	2.48
13	445	7.68	214	5.90	100	3.95	5.0	2.46
14	442	7.69	220	5.70	100	3.96	5.1	2.53
15	440	7.64	220	5.63	101	3.82	4.8	2.52
16	420	7.60	228	5.55	100	3.64	5.0	2.59
17	422	7.68	231	5.40	103	3.41	4.9	2.60
18	---	7.79	242	----	103	3.04	5.0	2.67
19		8.24	260		106	2.58	5.0	2.72
20		7.96	274		104	----	4.1	2.74
21		7.98	272		---	----	3.3	2.64
22		7.93	280		---	----	3.0	2.52
23		7.92	292				2.5	2.49

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 31

Winnipeg, Canada (49.9°N, 97.4°W) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.7	300				3.2	(2.7)
01		5.1	310				3.3	---
02		5.0	320				4.0	---
03		4.8	310				3.2	---
04		4.6	310				3.0	---
05	---	5.0	280	---	---	2.1	2.7	(2.85)
06	(480)	5.4	240	4.0	110	2.7		2.7
07	500	5.6	230	4.5	100	3.1		2.6
08	530	6.0	220	4.8	100	3.5		2.45
09	500	6.0	220	5.0	100	3.8		2.5
10	520	6.2	210	5.1	100	3.9		2.5
11	530	6.3	210	5.2	100	4.0		2.5
12	550	6.5	210	5.2	100	4.0		2.4
13	550	6.6	210	5.4	100	4.0		2.4
14	510	6.5	220	5.3	100	3.9		2.5
15	520	6.8	220	5.2	100	3.9		2.5
16	500	6.8	220	5.0	100	3.8		2.5
17	470	6.8	220	5.0	100	3.4		2.55
18	(420)	7.0	240	4.7	105	3.1		2.7
19	---	7.0	250	---	110	2.7		2.8
20		7.0	280		120	2.2	2.8	2.85
21		7.0	270		---	---	2.4	(2.85)
22		6.9	270				3.1	(2.7)
23		6.0	280				3.5	---

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 32

Formosa, China (25.0°N, 121.5°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		12.4	310				2.9	2.65
01		11.2	280				3.0	2.80
02		9.7	280				2.6	2.70
03		9.1	280				2.5	2.65
04		8.2	280				1.8	2.75
05		8.2	260				2.2	2.75
06		8.8	260			----	2.8	2.90
07		9.0	240			----	(4.0)	2.90
08	---	9.4	240	---		3.70	5.9	2.70
09	---	10.0	240	---		----	6.4	2.50
10	(400)	11.2	<250	(6.5)		----	6.1	2.40
11	(400)	12.1	<250	6.7		----	5.4	2.50
12	(410)	12.5	<280	(6.4)		----	5.6	2.45
13	(430)	13.1	<270	(6.4)		----	5.4	2.50
14	420	13.8	<280	6.4		----	5.8	2.55
15	400	14.0	<260	(6.3)		----	5.4	2.55
16	(400)	14.0	(240)	---		----	5.6	2.55
17	---	14.0	260			3.40	5.0	2.60
18		13.6	<280			----	4.4	2.55
19		12.8	310				4.0	2.55
20		12.5	<330				4.0	2.45
21		12.4	<350				3.0	2.45
22		11.6	(350)				2.9	2.45
23		11.6	<330				2.8	2.55

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 33

Bunia, Belgian Congo (1.5°N, 30.2°E) June 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	----					3.0	----
01	250	----					3.0	----
02	235	8.5					2.8	2.94
03	240	.6.7					3.2	2.99
04	275	8.2	---	---	---	---	3.0	2.86
05	275	12.5	250	---	120	2.8	3.9	2.87
06	285	14.0	245	---	110	3.4	4.1	2.83
07	310	13.9	240	---	110	3.8	4.5	2.68
08	370	14.1	240	---	110	4.0	4.8	2.48
09	420	14.2	250	---	110	4.0	4.0	2.29
10	440	14.0	250	---	115	4.1	4.6	2.20
11	480	13.6	250	---	115	4.0		2.15
12	520	13.1	250	---	115	4.0	4.8	2.01
13	490	13.2	250	6.0	115	4.0	4.4	2.07
14	460	13.4	250	---	115	3.4	4.2	2.08
15	410	13.5	260	---	120	2.8	3.8	2.20
16	(360)	13.0	290	---	---	---	3.5	2.22
17	340	12.9					3.0	2.20
18	340	(13.1)					2.4	(2.01)
19	310	----					2.0	----
20	290	----					2.4	----
21	275	----					3.6	----
22	270	----					3.0	
23	260	----					3.0	----

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 34

Leopoldville, Belgian Congo (4.4°S, 15.2°E) June 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	220	11.8					2.4	2.74
01	220	9.3					2.8	2.82
02	230	8.6					2.8	2.75
03	235	6.0					3.0	2.76
04	240	4.6					3.0	2.84
05	280	6.4	---	---	---	---	3.0	2.67
06	270	10.8	250	---	120	2.7	3.3	2.80
07	265	12.8	240	---	110	3.3	4.0	2.78
08	280	13.0	230	---	110	3.7	4.0	2.62
09	320	13.4	240	---	110	4.0		2.54
10	360	13.4	250	---	110	4.0		2.38
11	380	13.6	250	---	110	---		2.28
12	410	14.0	250	---	110	4.0		2.20
13	420	14.1	250	6.2	110	4.0	4.3	2.17
14	410	14.6	240	---	110	3.6	4.0	2.14
15	380	14.4	240	---	110	3.3	4.0	2.16
16	350	14.5	255	---	115	2.6	3.8	2.24
17	280	15.1	(270)	---	---	---	3.3	2.39
18	270	16.0					3.2	2.48
19	270	(15.0)					2.6	(2.60)
20	230	(16.3)					2.8	(2.48)
21	230	(15.2)					2.7	(2.59)
22	225	15.4					2.3	2.66
23	220	15.2					2.1	2.75

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 35

Elisabethville, Belgian Congo (11.6°S, 27.5°E) June 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	5.6					1.8	2.57
01	270	4.0					1.8	2.56
02	260	3.5					2.0	2.64
03	260	3.1					2.0	2.73
04	280	4.1	---	---			2.1	2.41
05	250	9.0	---	---	125	2.3	3.4	2.90
06	255	11.9	240	---	115	3.1	3.5	2.91
07	250	12.5	230	---	110	3.6	3.6	2.85
08	270	12.2	230	---	110	3.8	3.8	2.69
09	300	12.5	240	---	110	4.0		2.58
10	310	12.0	250	---	105	4.0		2.47
11	350	11.8	250	6.1	105	4.0	4.8	2.39
12	365	11.8	250	5.9	110	3.9	4.6	2.36
13	365	11.7	240	6.0	110	3.6	4.7	2.35
14	335	11.6	240	---	110	3.3	4.4	2.37
15	290	11.7	255	---	120	2.6	4.0	2.45
16	260	12.2	---	---			4.0	2.64
17	240	11.8					4.0	2.71
18	230	11.3					3.3	<2.75
19	230	10.4					3.0	2.66
20	230	10.6					2.9	2.63
21	230	9.0					2.7	2.64
22	230	8.6					2.9	2.64
23	230	6.5					2.0	2.62

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 7 seconds.

Table 36

Rarotonga I. (21.2°S, 159.8°W) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	260					2.60
01		5.9	250					2.80
02		5.3	240					2.80
03		4.4	250					2.60
04		4.0	<260					2.60
05		4.4	270					2.70
06		6.5	260		---	---	2.2	2.75
07		(10.9)	250		120	2.4	3.6	(3.10)
08		13.5	240		110	3.1	3.7	3.10
09		14.4	240		110	3.5		3.00
10	---	13.3	220		(110)	3.7	3.9	2.90
11	---	12.9	230		110	3.8	4.3	2.80
12	(340)	12.6	<220	---	110	3.9	4.3	2.70
13	(350)	12.7	230	---	110	3.8	4.4	2.60
14	340	13.0	230		110	3.6	4.3	2.60
15	---	13.0	250		110	3.3	4.0	2.60
16	---	(12.8)	250		115	2.7	3.5	(2.65)
17		(13.2)	250		---	1.7	3.7	(2.80)
18		(13.5)	240				3.2	(2.75)
19		(12.3)	230				3.1	(2.80)
20		(10.2)	240				3.0	(2.70)
21		(8.7)	240				2.4	(2.80)
22		8.1	230					2.75
23		(6.7)	240					(2.60)

Time: 165.0°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 37

Johannesburg, Union of S.Africa (26.2°S, 28.0°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.2	<295				<1.7	2.75
01		3.2	<295				<1.7	2.80
02		3.1	<295				<1.7	2.80
03		3.0	<300				<1.6	2.80
04		3.0	<200				<1.7	2.80
05		2.8	<300				<1.7	2.80
06		3.0	<275				<1.6	2.85
07		6.6	240			<2.1		3.20
08	---	9.9	230			2.8		3.25
09	(250)	11.8	230			3.3		3.20
10	---	12.5	225			3.6		3.10
11	(250)	12.0	220			3.8		2.95
12	---	12.0	215	---		3.9		2.85
13	(255)	11.8	220	---		3.9		2.80
14	---	11.8	220	---		3.7	3.9	2.80
15	---	11.4	235			3.4	3.6	2.75
16	---	11.6	235			3.0	3.4	2.80
17		11.0	235			2.4	2.5	2.90
18		10.1	220			<1.8	<2.2	3.00
19		7.8	220				<1.9	3.00
20		6.2	230				<1.9	3.10
21		5.0	<245				<2.0	3.10
22		3.8	<250				<1.9	3.05
23		3.3	<275				<1.7	2.85

Time: 30.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 38

Watheroo, W. Australia (30.3°S, 115.9°E) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.3	250					3.15
01		>4.2	250					3.10
02		4.2	(250)					3.20
03		4.2	<260					(3.10)
04		>4.2	<260					3.20
05		4.0	<250					3.10
06		4.1	<250					3.30
07		(5.2)	245		190	1.55		(3.40)
08		>8.5	230		110	>2.10	>2.1	----
09		>8.5	230		105	3.05	3.3	
10		>8.5	220		100	3.30	3.5	
11		>8.5	220		100	3.60	3.7	
12		>8.5	220		100	3.65	3.9	
13		>8.5	220		105	3.60	3.9	
14		>8.5	220		105	3.50	4.1	
15		>8.5	225		105	3.30	3.8	
16		>8.5	230		105	2.90	3.2	
17		>8.5	220		120	2.10	>2.1	
18		>8.5	210				1.8	----
19		>7.0	210					(3.40)
20		(6.6)	210					(3.30)
21		(4.7)	<230					3.20
22		>4.3	<240					(3.20)
23		4.3	250					3.20

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 39

Grahamstown, Union of S. Africa (33.3°S, 26.5°E) June 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00		2.82						2.85
01		(2.82)						(2.75)
02		(2.77)						(2.85)
03		(2.88)						(2.9)
04		2.86						2.8
05		(2.90)						2.75
06		(2.90)						3.0
07		(4.95)			---	<1.92		(3.0)
08		(8.35)			130	(2.48)		(3.5)
09		(10.70)	---		<125	(3.00)		(3.45)
10		(11.60)	235		<130	(3.30)	3.4	(3.3)
11		(11.90)	230		<130	(3.60)		(3.2)
12		(12.00)	(240)		<125	(3.65)		(3.2)
13		(11.90)	<245		<130	(3.60)		(3.1)
14		(11.80)	<245		<130	(3.40)	3.5	(3.1)
15		(11.50)	<250		<130	(3.15)	3.2	(3.0)
16		(11.60)	(240)		125	(2.70)		(3.0)
17		11.00			165	(2.00)		2.95
18		(8.70)						(3.1)
19		(7.00)						(3.2)
20		(5.35)						(3.25)
21		3.29						3.2
22		(2.80)						(2.9)
23		(2.90)						(2.75)

Time: 30.0°E.
Sweep: 1.5 Mc to 15.0 Mc.

Table 40

Ellsworth (77.7°S, 41.1°W) June 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.3)	400				4.2	(2.40)
01		(3.6)	435				4.2	(2.35)
02		(3.4)	<430				3.4	(2.32)
03		(4.2)	(420)				3.0	(2.30)
04		(4.4)	370				2.7	(2.40)
05		(4.3)	350				2.9	(2.45)
06		(4.4)	300					(2.60)
07		(4.35)	270					(2.75)
08		(3.7)	<275					(2.82)
09		(3.5)	(245)					(2.80)
10		(3.8)	250					2.85
11		(4.0)	240					(2.90)
12		4.6	230					3.05
13		4.8	225					3.20
14		(4.5)	230					(3.22)
15		(3.75)	240					(3.10)
16		(3.4)	245					(3.30)
17		(2.6)	265					(3.10)
18		2.3	320					3.00
19		2.05	325					2.85
20		(2.0)	<400				2.5	(2.48)
21		(2.3)	(400)				3.2	(2.50)
22		(2.1)	<385				2.5	(2.35)
23		(2.8)	(395)				3.7	(2.40)

Time: 45.0°W.
Sweep: 1.4 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Oslo, Norway (60.0°N, 11.1°E) May 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	340					2.30
01		6.9	335					2.40
02		6.4	320		---	----		2.35
03		6.3	320		---	1.40	1.4	2.40
04		6.3	300		115	1.90		2.50
05	(540)	6.5	260	3.95	110	2.30		2.55
06	(550)	6.9	250	4.35	110	2.70		2.55
07	(520)	6.9	245	4.55	110	3.05		2.55
08	500	7.4	240	5.00	105	3.30		2.50
09	500	7.4	240	5.30	105	3.55	3.6	2.40
10	505	7.5	240	5.35	105	3.70		2.40
11	515	7.8	240	5.50	105	3.80		2.40
12	470	7.9	240	5.55	105	3.85		2.50
13	500	7.8	240	5.60	110	3.80		2.50
14	485	7.9	240	5.55	105	3.80		2.40
15	485	7.8	240	5.25	110	3.65		2.50
16	(460)	7.7	240	----	110	3.50		2.55
17	---	8.0	250	----	110	3.20		2.55
18		7.8	250		110	2.85		2.60
19		7.7	260		110	2.45	2.9	2.55
20		7.8	275		115	2.00		2.70
21		6.4	300		---	----		2.55
22		6.8	300		---	----		2.40
23		6.7	320					2.35

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 42

Lindau/Harz, Germany (51.6°N, 10.1°E) May 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.74	317					2.33
01		7.30	326					2.35
02		6.95	318					2.34
03		6.64	311		---	----		2.35
04		6.42	312		---	----	2.2	2.42
05	---	6.70	276	----	107	1.84	3.0	2.54
06	---	7.30	251	----	104	2.56	3.6	2.58
07	(475)	7.66	237	4.85	102	3.05	4.3	2.57
08	447	7.92	230	5.40	103	3.38	4.8	2.53
09	482	8.00	228	5.50	102	3.59	5.0	2.44
10	470	8.30	221	5.90	101	3.80	5.0	2.45
11	470	8.60	218	5.80	102	3.85	5.1	2.42
12	421	8.90	222	6.20	101	3.90	5.0	2.45
13	441	8.88	221	6.16	101	3.96	4.8	2.42
14	454	8.99	226	6.04	100	3.90	4.7	2.44
15	455	8.78	227	5.78	101	3.80	4.7	2.50
16	432	8.80	230	5.68	104	3.56	4.3	2.50
17	---	8.72	243	----	102	3.27	4.4	2.56
18		8.80	251		106	2.85	4.1	2.62
19		8.61	266		108	2.33	3.8	2.66
20		8.50	271		---	----	2.8	2.63
21		8.23	277		---	----	2.7	2.52
22		8.20	281					2.47
23		7.96	300					2.39

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 43

Townsville, Australia (19.3°S, 146.7°E) May 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>6.6	(240)					(2.80)
01		6.2	<250					(2.60)
02		(6.4)	250					(2.75)
03		6.0	240					(2.80)
04		4.6	<260					2.80
05		4.7	(265)					2.70
06		>5.1	250		---	<1.50		(2.85)
07		>9.0	250		(130)	2.35		----
08		>11.3	240		110	3.05		----
09		>13.0	240		110	3.50	3.7	----
10		(13.4)	230		100	3.70	3.8	(2.90)
11		>13.1	225		110	3.90		(2.80)
12		13.4	220		100	4.00	4.3	2.70
13		>12.8	240		110	4.00	4.6	2.65
14		>12.1	(235)		110	3.80	4.6	(2.70)
15		>11.5	230		110	3.50	4.3	(2.50)
16		>11.0	245		110	3.20	4.5	<2.60
17		>10.0	250		110	2.60	3.8	----
18		>9.0	250		---	<1.60	4.0	----
19		>8.2	240				3.8	----
20		(8.0)	260				3.0	(2.80)
21		>7.5	(250)					----
22		(7.2)	250					(2.90)
23		>7.0	240					----

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 44

Grahamstown, Union of S. Africa (33.3°S, 26.5°E) May 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00		4.4						3.0
01		4.0					1.7	(3.0)
02		4.0						2.95
03		4.1						3.0
04		4.1						3.3
05		4.0						3.2
06		3.7						3.35
07		(7.0)			<180	1.75		(3.6)
08		(11.5)			115	----		---
09		---	235		(115)	----		---
10		---	235		<130	----	(3.6)	
11		---	(235)		<130	----		
12		---	(235)		<130	----		
13		---	<245		---	----		
14		---	<250		<135	----		
15		---	<245		---	----		
16		---	240		---	----		
17		---			120	----		
18		---					2.1	
19		---					1.8	---
20		---						
21		---					1.8	---
22		(6.2)					1.7	(3.3)
23		(5.0)						(3.35)

Time: 30.0°E.
Sweep: 1.5 Mc to 15.0 Mc.

Table 45

Ellsworth (77.7°S, 41.1°W) May 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.3)	(410)				4.6	(2.30)
01		(3.4)	(405)				3.1	(2.30)
02		(3.0)	405				2.9	(2.32)
03		(5.3)	380				2.2	(2.30)
04		(5.2)	390				2.5	(2.28)
05		(5.1)	375					(2.30)
06		(4.2)	<330					(2.40)
07		(4.75)	305					(2.42)
08		(4.5)	255					(2.55)
09		(4.8)	255					(2.65)
10		(5.45)	250					(2.82)
11		6.25	230		---	---		2.90
12		7.0	220		---	---		3.00
13		7.9	230		---	---		3.02
14		8.3	215					3.05
15		8.4	225					3.10
16		7.15	230		---	---		3.05
17		6.3	250					3.15
18		(4.0)	260					(3.00)
19		(3.25)	310					(2.90)
20		(3.3)	350					(2.70)
21		>2.5	400				2.4	(2.50)
22		(2.95)	(380)				2.7	(2.45)
23		(3.1)	<405				4.2	(2.35)

Time: 45.0°W.
Sweep: 1.4 Mc to 25.0 Mc in 13.5 seconds.

Table 46

Eureka, Canada (80.0°N, 85.9°W) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.8	300		---	1.8		
01		6.7	290		---	1.8		
02		6.3	290		---	1.8		
03		6.4	280		---	2.0		
04	---	6.5	280	---	140	2.1		
05	---	6.4	270	---	125	2.2		
06	---	6.7	260	---	110	2.4		
07	---	6.9	260	---	110	2.5		
08	---	6.2	250	4.4	105	2.6		
09	(440)	6.7	250	4.6	105	2.7		
10	(500)	6.8	240	4.6	100	2.8		
11	500	7.0	240	4.5	100	3.0		
12	500	6.8	240	4.6	100	3.0		
13	480	6.4	240	4.5	100	3.0		
14	530	6.2	240	4.4	100	3.0		
15	530	6.3	250	4.4	105	3.0		
16	520	6.4	250	4.6	105	2.8		
17	(500)	6.0	260	4.4	105	2.6		
18	---	5.6	270	---	105	2.6		
19	(470)	6.4	270	4.4	110	2.5		
20	---	6.0	270	---	110	2.2		
21		6.2	290		120	2.1		
22		6.3	290		140	2.0		
23		6.4	300		---	1.8		

Time: 75.0°W.
Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 47

Lycksele, Sweden (64.6°N, 18.8°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.4	415				3.5	2.2
01		6.2	380				2.6	2.2
02		6.2	355				2.1	2.2
03		6.0	350		---	E	1.9	2.2
04	---	5.5	310	----	130	1.50	2.3	2.3
05	(360)	6.0	270	3.80	115	1.95	2.4	2.4
06	310	6.3	265	(4.00)	110	2.35	2.5	2.55
07	390	7.0	245	4.80	105	2.85	3.2	2.5
08	340	7.6	240	5.10	105	3.10	3.8	2.6
09	385	8.1	235	5.70	105	3.25	3.8	2.4
10	380	8.4	230	5.70	105	3.30	3.9	2.4
11	400	8.6	230	5.90	105	3.40	3.8	2.4
12	400	9.0	235	5.95	105	3.50	3.9	2.4
13	400	9.1	230	5.90	105	3.45	3.9	2.4
14	400	9.1	230	5.50	105	3.40	3.9	2.4
15	350	9.1	235	5.30	105	3.20	3.8	2.5
16	(320)	9.0	240	4.70	105	2.95	3.8	2.5
17	(290)	8.8	250	3.95	110	2.60	3.4	2.6
18	(300)	8.3	265	(3.70)	115	2.05	3.1	2.6
19	---	7.8	275	----	130	1.85	2.1	2.6
20		6.7	300		---	E	2.1	2.5
21		6.0	360		---	----	3.3	2.3
22		6.0	410				3.5	2.2
23		6.1	400				3.5	2.2

Time: 15.0°E.
Sweep: 1.4 Mc to 16.0 Mc in 6 minutes, automatic operation.

Table 48

Churchill, Canada (58.8°N, 94.2°W) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.0	320				4.4	
01		6.0	320		---	---	5.0	
02		5.4	300		---	---	4.8	---
03		5.2	330		---	1.8	4.6	
04		5.0	340		130	1.6	4.2	
05	---	5.0	340	---	125	2.1	4.2	
06	---	5.4	300	3.9	110	2.6	3.8	---
07	(500)	6.1	260	4.2	115	3.1	4.4	(2.6)
08	(530)	6.7	250	4.7	110	3.3	4.5	---
09	580	6.4	240	5.0	110	3.6	4.4	(2.5)
10	540	7.0	240	5.2	105	3.7	4.3	2.4
11	550	7.4	240	5.3	110	3.7	4.4	2.4
12	540	7.6	240	5.4	110	3.7		2.35
13	490	8.0	230	5.2	110	3.7		2.3
14	470	8.2	230	5.0	110	3.6	4.4	2.4
15	470	7.8	230	4.9	110	3.4	4.3	(2.4)
16	450	7.0	230	4.6	110	3.2	4.5	(2.4)
17	500	6.8	250	4.3	110	3.0	4.4	---
18	(480)	6.3	280	(4.0)	110	3.0	3.4	---
19	---	6.4	300	---	120	2.6	3.8	---
20		5.8	340		120	2.0	4.5	---
21		5.4	320		130	2.0	5.3	
22		5.7	320		---	(1.9)	5.8	
23		6.0	320		---	(1.5)	5.4	

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 49

De Bilt, Holland (52.1°N, 5.2°E) April 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	6.6						2.45
01	340	6.5						2.45
02	340	6.0						2.45
03	340	5.3						2.45
04	320	5.3						2.50
05	270	5.8	---	---	130	2.0		2.75
06	240	6.8	240	---	120	2.7		2.85
07	230	7.7	230	---	110	3.0		2.85
08	455	8.7	230	---	110	3.4		2.80
09	415	9.8	230	5.8	110	3.7		2.65
10	---	10.4	230	---	110	3.9		2.70
11	430	11.0	230	6.6	110	4.0		2.65
12	---	11.1	230	---	110	4.0		2.60
13	405	11.0	230	6.3	110	3.9		2.65
14	---	11.0	230	---	110	3.8		2.60
15	---	10.8	230	---	110	3.6		2.65
16	---	10.4	235	---	110	3.2		2.70
17	245	10.3	240	---	120	2.8		2.70
18	250	10.1	---	---	---	2.2		2.80
19	250	9.7						2.80
20	260	8.8						2.70
21	285	7.8						2.60
22	315	7.2						2.55
23	340	7.0						2.40

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 50

Lindau/Harz, Germany (51.6°N, 10.1°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.36	342					2.28
01		7.00	336					2.26
02		6.78	328					2.28
03		6.44	318					2.30
04		5.95	320		---	----		2.30
05		5.80	310		---	1.35		2.44
06		6.75	262		112	1.94	3.0	2.66
07		7.56	244		107	2.65		2.74
08	---	8.50	238	----	102	3.10		2.64
09	---	9.68	228	----	102	3.46		2.60
10	(435)	10.34	228	5.90	102	3.70	4.5	2.54
11	(438)	11.12	224	6.15	102	3.80	4.6	2.49
12	(463)	11.40	221	6.10	102	3.86	4.6	2.47
13	450	11.59	228	6.35	102	3.87	4.6	2.47
14	(439)	11.60	232	6.20	102	3.82	4.4	2.49
15	---	11.28	232	----	102	3.66	4.0	2.52
16	---	10.92	236	----	102	3.42	3.9	2.53
17	---	10.88	240	----	103	3.05	3.5	2.57
18		10.72	250		107	2.55	3.2	2.64
19		10.45	259		---	1.78	3.0	2.67
20		9.69	257		---	----		2.63
21		8.86	260					2.52
22		8.19	287					2.39
23		7.68	312					2.33

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 51

Budapest, Hungary (47.4°N, 19.2°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.2	360					
01		7.0	<340					
02		6.2	335					
03		6.2	335					
04		>6.4	300		---	---		
05		7.7	265		135	2.4		
06	---	>8.9	250	---	125	3.0		
07	400	9.5	240	5.4	120	3.4		
08	430	11.1	235	6.2	120	3.6	3.9	
09	430	>11.3	230	6.6	120	3.8	4.3	
10	390	11.8	235	6.9	120	3.8	4.2	
11	405	>11.9	240	6.6	120	3.8	4.3	
12	410	>11.7	245	6.6	120	3.8		
13	400	12.0	245	6.5	120	3.8		
14	(385)	>11.2	245	6.2	120	3.6		
15	(370)	11.1	250	5.7	120	3.3		
16	---	>10.8	260	---	130	2.8		
17		9.7	280		135	---		
18		(9.2)	280					
19		(8.3)	280					
20		>6.5	300					
21		(6.2)	330					
22		>6.3	350					
23		>6.7	370					

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 52

Wakkanai, Japan (45.4°N, 141.7°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.3	320					2.45
01		8.0	310					2.45
02		7.6	300					2.45
03		7.3	310					2.35
04		7.3	335					2.35
05		7.8	290			2.00		2.50
06	---	9.4	250	---		2.60		2.70
07	---	10.6	245	---		3.10		2.70
08	---	11.4	240	---		3.50		2.70
09	---	11.8	240	---		3.65		2.60
10	(490)	12.2	230	6.5		3.75		2.65
11	(440)	12.1	230	6.5		3.85		2.60
12	(430)	12.5	230	6.4		3.80		2.60
13	(420)	12.3	235	6.6		3.70		2.55
14	---	12.0	240	---		3.65		2.55
15		11.6	250			3.55		2.55
16		11.3	250			3.20		2.55
17		10.9	260			2.65		2.60
18		10.6	270			2.10		2.65
19		9.8	270					2.60
20		9.2	285					2.55
21		9.0	300					2.45
22		8.9	310					2.45
23		8.8	320					2.45

Time: 135.0°E.
Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 53

Akita, Japan (39.7°N, 140.1°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.3	300					2.50
01		9.0	300					2.50
02		8.6	300					2.50
03		8.1	300					2.40
04		7.9	320					2.35
05		8.6	300					2.45
06		10.6	250			2.55		2.80
07		11.8	245			3.10		2.80
08		12.8	240			3.55		2.75
09	---	13.4	240			3.95	4.2	2.70
10	(250)	13.6	240	---		4.00	4.2	2.60
11	(250)	13.8	240	---		4.05		2.55
12	(250)	14.0	240	---		4.10		2.55
13	---	13.6	245	---		4.05		2.50
14	---	13.3	245	---		3.95		2.50
15	---	12.8	250	---		3.70		2.50
16	---	12.3	250			3.30		2.55
17		11.9	255			2.70		2.60
18		11.6	270			----	2.3	2.65
19		10.6	260				2.5	2.65
20		9.6	290					2.50
21		9.6	300					2.45
22		9.7	310					2.50
23		9.7	305					2.50

Time: 135.0°E.
Sweep: 1.6 Mc to 20.0 Mc in 20 seconds.

Table 54

Tokyo, Japan (35.7°N, 139.5°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.8	310					2.55
01		9.3	300					2.55
02		8.8	300					2.55
03		8.1	300					2.40
04		8.0	320					2.40
05		8.6	305					2.45
06		10.8	250			2.60		2.80
07		12.3	240			3.10	3.3	2.85
08	---	13.0	235			3.55	3.9	2.80
09	---	13.6	235			3.85	4.2	2.65
10	---	13.8	230	---		4.00	4.3	2.60
11	---	14.2	235	---		4.00		2.55
12	---	14.5	230	---		4.05		2.50
13	(270)	14.2	240	---		(4.10)		2.50
14	---	14.0	240	---		(4.00)		2.45
15	---	13.5	245	---		3.80		2.45
16	---	13.2	250	---		3.40		2.50
17	---	12.4	255			2.80	3.1	2.55
18	---	12.0	270				2.6	2.65
19		11.0	265				3.2	2.60
20		10.0	290					2.50
21		10.0	320					2.45
22		10.2	320					2.50
23		10.0	305					2.60

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 55

Yamagawa, Japan (31.2°N, 130.6°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.9	280				2.1	2.75
01		10.4	275				2.3	2.75
02		10.0	265				1.4	2.70
03		8.9	250					2.60
04		8.3	280				1.2	2.55
05		8.1	295					2.50
06		9.2	255			1.95		2.70
07		11.2	235			2.70	2.9	3.00
08		12.4	230			3.40	3.8	2.95
09		13.0	230			3.70	4.6	2.80
10	---	13.7	220			3.95	4.7	2.70
11	---	14.1	220			4.05	5.0	2.65
12	---	14.5	220			4.10	4.6	2.60
13	---	14.7	225	---		4.10	4.7	2.60
14	---	14.5	230	---		4.10	5.5	2.55
15	---	14.4	230	---		3.95	4.7	2.55
16		14.0	240			3.65	4.0	2.60
17		13.6	250			3.10	3.8	2.60
18		(13.4)	255			2.40	3.4	(2.70)
19		12.5	270				3.6	2.65
20		11.6	290				2.9	2.60
21		11.2	295				2.6	2.55
22		11.2	300				2.8	2.60
23		11.3	290				2.3	2.70

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 56

Bogota, Colombia (4.5°N, 74.2°W) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.8	245				2.5	2.75
01		10.7	245					2.85
02		9.9	235				2.2	2.90
03		8.7	225				2.9	2.95
04		7.3	230				2.8	2.70
05		6.45	255				3.1	2.62
06		8.1	280		<139	2.05	3.9	2.70
07		11.1	245		115	3.00	3.8	3.00
08		13.0	235		109	3.60	3.9	2.80
09		13.5	230		109	4.00		2.70
10		14.3	225		109	4.20		2.60
11		14.6	220		105	4.35		2.50
12	---	14.7	(220)		105	4.40		2.45
13	450	14.95	220	---	106	4.35	.	2.45
14	430	15.0	220	---	107	4.15	4.3	2.45
15	420	14.75	<240		105	3.90	4.4	2.45
16	(440)	14.0	(240)		105	3.40	4.6	2.40
17		13.95	255		(111)	2.80	4.4	2.40
18		14.05	300		---	----	4.2	2.45
19		14.9	335				4.3	2.45
20		16.1	310				3.6	2.55
21		16.2	255				3.1	2.70
22		14.8	230					2.80
23		12.8	240					2.80

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 57

Grahamstown, Union of S. Africa (33.3°S, 26.5°E) April 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00		(5.6)					1.8	(2.7)
01		(5.0)					1.8	(2.4)
02		(4.8)					2.0	(2.3)
03		(4.7)						(2.3)
04		4.7						2.75
05		(3.9)						2.5
06		(4.5)			---	<1.50		(2.5)
07		---			120	(2.30)		---
08		---			115	(3.10)		
09		---	(230)		115	(3.50)		
10		---	<235		115	----	(3.8)	
11		---	<240		<120	----		
12		---	---		---	----		
13		---	---		---	----		
14		---	---		---	----		
15		---	<245		<130	----	3.8	
16		---	245		<125	(3.40)	3.5	
17		---	---		115	----		
18		---			115	1.80	1.8	
19		(11.1)					2.0	(2.8)
20		---					2.0	---
21		---					1.8	
22		---					2.0	---
23		(5.4)						(3.3)

Time: 30.0°E.
Sweep: 1.5 Mc to 15.0 Mc.

Table 58

Hobart, Tasmania (42.9°S, 147.2°E) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.8	280					2.55
01		>6.9	280					2.45
02		>6.2	280				3.0	2.55
03		>6.0	280				2.7	2.60
04		5.6	280					2.60
05		5.2	280				1.9	2.60
06		4.8	290		---	<1.40		2.50
07		>6.5	260		---	2.25		2.90
08		>9.0	240		120	2.80		3.05
09		10.8	230		110	3.10		3.00
10		11.8	230		105	3.40		2.85
11		>13.0	230		100	3.55		2.85
12		13.0	230		100	3.65		2.75
13		>13.0	230		100	3.60		(2.70)
14		>12.9	230		110	3.55		(2.65)
15		(12.3)	230		110	3.25		(2.65)
16		>11.0	230		115	2.90		----
17		>11.0	240		---	2.30		----
18		>11.0	240		---	<2.10		(2.75)
19		>9.5	240					(2.70)
20		8.6	250					2.65
21		8.2	270					2.65
22		7.3	270					2.60
23		(7.2)	260					2.55

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 59

Ellsworth (77.7°S, 41.1°W) April 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.5)	(420)				4.5	(2.25)
01		(4.85)	<400				3.6	(2.28)
02		(4.9)	410				3.4	(2.25)
03		(5.0)	430				2.6	(2.20)
04		(5.2)	<395					(2.20)
05		>5.2	370					(2.25)
06		(5.4)	(360)					(2.30)
07		(5.5)	290		---	----		(2.48)
08		(6.0)	(270)		---	----		(2.70)
09		6.45	265		---	----		2.70
10		7.6	250		(123)	2.05		2.88
11		9.0	245		121	----		2.88
12		9.65	245		129	2.22		2.90
13		10.7	240		---	----		2.90
14		10.95	240		---	2.10		2.95
15		10.8	240		---	----		2.95
16		10.4	250		---	----		2.98
17		9.4	260		---	----		2.95
18		(7.0)	295		---	----		2.98
19		(5.2)	420				2.7	(2.70)
20		(4.8)	300				2.5	(2.65)
21		(3.9)	(400)				2.9	(2.70)
22		(3.9)	<380				3.0	(2.40)
23		(4.8)	400				3.4	(2.35)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 60

Baker Lake, Canada (64.3°N, 96.0°W) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		6.5	280		---	---	2.2	
01		6.0	280		---	---	1.4	----
02		5.3	290		---	---	2.4	----
03		5.0	300		---	---		
04		4.7	310		---	---	2.0	
05		4.6	320		---	2.2	3.0	
06		4.6	300		130	1.8		----
07	---	5.0	300	---	120	2.0		----
08	---	5.6	280	---	120	2.2		----
09	(420)	5.8	260	4.1	120	2.8		----
10	(490)	6.0	260	4.5	115	3.0		----
11	(480)	6.0	280	4.5	115	3.2		----
12	(500)	6.8	270	4.7	120	3.4		(2.6)
13	400	7.6	260	4.5	110	3.1		(2.55)
14	440	8.0	260	4.4	110	3.0		----
15	400	7.6	260	4.3	120	2.9		----
16	(450)	7.2	270	4.1	120	2.6		----
17	---	6.7	280	---	120	2.4		----
18	---	6.4	300	---	120	2.0		
19		6.3	300		---	1.6	3.4	
20		6.1	300		---	---		
21		5.8	290		---	---	1.8	
22		5.8	280		---	---	2.6	
23		5.9	280				3.7	

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 61

Grahamstown, Union of S. Africa (33.3°S, 26.5°E) March 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	foEs	(M3000)F2
00		(5.90)					1.6	2.6
01		5.34					1.8	2.55
02		5.00						2.5
03		4.61						>2.5
04		4.30						2.35
05		>4.04						2.4
06		(5.00)			---	<1.50		(2.8)
07		(0.30)			120	2.50		(3.2)
00		(10.15)	---		120	3.20		(3.05)
09		----	(245)		<120	3.55	3.6	----
10		----	<245		(115)	----	3.9	----
11		----	<245		(115)	----	(4.0)	----
12		----	---		(120)	----		
13		----	---		---	----		----
14		----	---		<125	----		----
15		----	<260		<130	----		----
16		----	<255		<130	3.50	3.5	----
17		----	---		(120)	(3.10)	3.1	----
18		(11.00)			120	----	2.2	(2.9)
19		(10.95)			---	<1.50	2.1	(2.8)
20		----					2.0	----
21		----					2.0	----
22		(7.00)					2.2	----
23		(6.40)					1.9	2.8

Time: 30.0°E.
Sweep: 1.5 Mc to 15.0 Mc.

Table 62

Ellsworth (77.7°S, 41.1°W) March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.5)	435		---	----	4.1	(2.25)
01		(5.6)	400		---	----	3.1	(2.20)
02	---	(5.8)	(445)		---	----	3.1	(2.25)
03	---	(5.6)	420		---	----		(2.25)
04	(460)	(5.95)	395		---	----	2.3	(2.28)
05	(405)	(5.0)	345		---	----		(2.32)
06	---	(5.6)	<340		---	----		(2.40)
07	---	(5.8)	290	---	---	----		(2.50)
00	---	(5.5)	(290)	---	129	2.60		(2.70)
09	---	6.1	(270)	---	120	----		2.70
10	---	6.1	265	---	119	----		2.75
11	---	6.65	<270	---	121	2.90		2.82
12	---	6.6	(265)	---	115	----		2.80
13	---	7.4	260	---	115	2.72		2.80
14	---	7.85	260	---	117	2.85		2.80
15	(415)	8.3	260	---	111	2.70		2.80
16	(370)	8.95	250	---	---	----		2.88
17	(470)	8.9	270	---	125	2.40		2.85
18	---	8.1	290		---	----		2.80
19	---	7.9	<315		---	----		2.80
20		(7.0)	330		---	----		(2.70)
21		(6.15)	350		---	----	3.0	(2.60)
22		(5.2)	<415		---	----	4.0	(2.40)
23		(5.6)	<445		---	----	4.3	(2.20)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 63

Budapest, Hungary (47.4°N, 19.2°E) February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(4.7)	(325)					
01		4.8	330					
02		4.7	330					
03		4.5	305					
04		4.1	300					
05		4.2	300					
06		(6.5)	250					
07	---	9.6	245	---	130	2.7		
08	---	>11.7	240	---	125	2.8		
09	---	13.0	235	---	120	3.1		
10	---	>13.4	230	---	120	3.2		
11	---	13.2	230	---	125	3.2		
12		----	---		---	---		
13		12.3	240		130	3.2		
14		>11.8	240		130	2.8		
15		(11.2)	240		<135	2.8		
16		10.0	240		---	---		
17		>9.0	240					
18		(6.7)	245					
19		5.9	270					
20		>5.4	300					
21		5.0	330					
22		4.9	340					
23		5.0	340					

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 64

Ellsworth (77.7°S, 41.1°W) February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(430)	(5.8)	350	---	135	----	3.2	(2.40)
01	(425)	(6.6)	365	---	---	----	2.0	(2.40)
02	(440)	(6.7)	340	---	131	2.30		(2.35)
03	(460)	(6.7)	(315)	---	---	----		(2.35)
04	450	(6.65)	<290	3.8	129	2.60		(2.32)
05	500	(6.6)	270	3.8	125	>2.60		(2.35)
06	450	(6.9)	260	4.2	115	2.50		(2.40)
07	455	6.75	255	4.0	115	2.70		2.40
00	475	6.5	250	4.3	112	2.90		2.50
09	460	6.45	250	4.6	<115	(3.00)		2.50
10	540	6.2	245	4.7	113	3.00		2.50
11	555	6.55	240	5.0	111	3.00		2.52
12	(525)	6.3	250	(5.0)	108	>3.00		2.65
13	(530)	6.45	245	(5.0)	108	2.90		2.68
14	(480)	6.5	240	4.5	109	3.00		2.70
15	(450)	6.7	250	---	114	2.95		2.70
16	(470)	6.85	250	(4.1)	115	2.78		2.75
17	(515)	6.75	255	4.2	115	2.75		2.65
18	(570)	7.0	<275	(4.0)	115	2.60		2.85
19	---	(6.1)	270	---	(124)	2.50		2.80
20	---	6.0	290		<137	2.60		2.80
21	---	6.05	295		<139	2.60		2.70
22	---	(5.65)	310		---	----	3.0	(2.62)
23	---	(5.7)	<355		<149	2.30		(2.48)

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 65

Ellsworth (77.7°S, 41.1°W) January 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	<470	7.3	300	4.1	115	(2.55)	2.9	2.35
01	485	(7.0)	300	(4.1)	111	2.60		(2.25)
02	<480	6.9	285	(4.1)	109	2.80		2.25
03	475	6.7	280	4.1	111	2.80		2.25
04	485	(6.7)	265	4.2	110	3.00		(2.25)
05	490	(6.95)	255	4.3	109	2.98		(2.25)
06	540	6.8	250	4.5	109	3.05		2.22
07	545	6.7	240	4.7	106	3.20		2.25
08	570	6.35	240	4.9	107	3.30		2.25
09	595	6.35	240	5.0	106	3.40		2.30
10	570	6.4	240	5.1	101	3.40		2.25
11	605	6.3	240	5.2	101	3.42		2.20
12	560	6.5	<245	5.2	103	(3.40)		2.35
13	520	6.55	<240	5.4	101	>3.35		2.38
14	535	6.6	240	5.3	101	3.45		2.35
15	525	6.7	245	5.4	105	3.38		2.40
16	490	6.9	250	5.4	105	3.35		2.45
17	475	7.0	250	(5.0)	105	3.25		2.45
18	(440)	7.15	255	---	109	(3.00)		2.50
19	440	7.1	260	4.6	109	>2.90		2.50
20	<450	7.2	270	4.4	113	2.85		2.50
21	(410)	7.4	270	---	115	>2.80		2.45
22	420	7.3	285	---	115	2.65		2.48
23	490	6.85	280	4.0	113	2.60	>2.7	2.35

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 66

Wilkes Station (66.2°S, 110.5°E) December 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	(5.1)	330		109	----	4.8	(2.55)
01	---	(5.2)	<310		105	(1.80)	4.4	(2.60)
02	---	(5.3)	310		102	(2.15)	4.2	(2.50)
03	(500)	(5.4)	290	(3.5)	101	(2.42)	5.0	(2.50)
04	470	(5.5)	255	(4.0)	101	(2.75)	4.9	(2.48)
05	530	(5.6)	245	(4.4)	101	(3.00)	5.2	(2.32)
06	580	(5.6)	240	4.5	101	3.35	4.5	(2.20)
07	620	(5.8)	230	4.7	101	3.50	4.0	(2.20)
00	650	(5.6)	230	4.8	101	3.70	4.8	(2.15)
09	700	(5.7)	230	5.0	101	(3.80)	4.5	(2.10)
10	680	(5.8)	(230)	5.0	101	(3.90)		(2.02)
11	650	(5.9)	240	(5.1)	101	(3.95)		(2.15)
12	(690)	(5.9)	<240	(5.0)	101	4.00		(2.10)
13	620	(6.05)	(220)	(5.0)	101	3.90		(2.10)
14	600	(5.8)	220	(4.9)	101	(3.80)		(2.15)
15	(600)	(5.8)	220	(4.8)	101	3.58	3.7	(2.20)
16	590	(5.9)	220	(4.7)	101	(3.42)	3.6	(2.20)
17	550	(5.8)	230	(4.6)	101	(3.20)		2.20
18	550	(5.8)	240	(4.4)	101	(2.90)	3.6	(2.25)
19	495	(6.0)	260	(4.0)	103	2.68	3.6	(2.30)
20	(485)	(5.85)	290	(3.7)	103	(2.45)	3.5	(2.40)
21	---	5.8	300		103	(2.10)	3.8	2.50
22	---	5.35	315		103	(1.95)	2.6	(2.45)
23	---	5.25	330		105	----	3.9	2.50

Time: 105.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 67

La Paz, Bolivia (16.5°S, 68.0°W) — November 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(8.7)	385				(4.0)	(2.35)
01		(9.35)	410				3.8	(2.50)
02		(9.1)	345				(3.2)	(2.60)
03		(9.05)	310					(2.58)
04		(8.2)	<260					(2.70)
05		8.25	255				2.7	2.88
06		8.8	280		---	1.90	3.6	(2.80)
07		>11.65	255		113	2.90	4.5	(2.65)
08		13.2	240		111	3.55	5.0	(2.55)
09		14.1	230		111	----	>7.1	(2.50)
10		(14.4)	220		---	----	8.8	(2.30)
11		>14.0	220		---	----	8.8	(2.15)
12		>14.0	215		---	----	9.2	(2.00)
13		(13.9)	215	---	---	----	9.5	1.95
14		>12.45	215	---	---	----	8.4	(1.95)
15		>12.2	220		111	----	8.8	(2.00)
16		(12.4)	240		---	----	8.4	(2.00)
17		(12.0)	255		---	----	7.2	(2.00)
18		(11.9)	285		113	(2.50)	5.7	(2.00)
19		>11.0	350		---	----		(1.98)
20		>9.45	450					(1.90)
21		>9.3	480					(1.95)
22		(9.3)	450				1.7	(2.05)
23		>9.0	430				2.4	(2.08)

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 68

Wilkes Station (66.2°S, 110.5°E) — November 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.2)	310		---	----	5.1	(2.50)
01	---	(5.1)	320		---	----	4.6	(2.50)
02	---	(5.35)	305		107	(1.50)	5.2	(2.60)
03	---	(5.6)	290	---	109	----	4.5	(2.55)
04	(475)	(5.6)	(270)	(3.9)	105	(2.45)	4.9	(2.50)
05	515	(5.9)	250	4.3	103	(2.80)	4.6	(2.35)
06	560	(5.8)	240	4.4	101	(3.10)	4.2	(2.30)
07	565	(6.0)	230	(4.7)	101	3.30	3.6	2.20
08	555	(6.0)	220	4.8	101	(3.50)		(2.25)
09	610	(6.0)	230	(4.9)	101	3.65		(2.15)
10	605	(6.15)	(230)	4.9	101	(3.70)		(2.15)
11	590	(6.5)	(240)	(5.0)	101	(3.70)		(2.30)
12	<575	(6.7)	(230)	(5.0)	101	(3.75)		(2.22)
13	550	(6.9)	225	(4.8)	101	(3.70)		(2.25)
14	540	(6.6)	220	(4.8)	101	(3.60)		(2.25)
15	530	(6.5)	225	(4.6)	101	3.45		(2.25)
16	510	(6.5)	240	(4.6)	101	3.18		(2.32)
17	520	6.2	230	(4.5)	101	(2.98)	3.2	2.32
18	520	(6.3)	250	(4.0)	103	(2.60)	3.3	(2.40)
19	(465)	6.1	280	3.7	103	(2.35)	3.5	2.45
20	---	6.0	295		103	----	4.2	2.50
21	---	(5.75)	300		107	----	4.0	(2.50)
22		(5.4)	310		109	----	4.0	(2.50)
23		(5.1)	310		---	----	4.8	(2.50)

Time: 105.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 69

Wilkes Station (66.2°S, 110.5°E) — October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.8)	280				3.5	(2.50)
01		(5.2)	285				4.4	(2.50)
02		(5.0)	280				3.8	(2.60)
03		(5.6)	280		---	----	3.6	(2.55)
04		(5.6)	290		115	(1.80)	2.2	(2.60)
05		(6.2)	275		111	2.25	2.6	(2.60)
06	(465)	(5.95)	260	(4.4)	109	(2.70)	3.0	(2.55)
07	475	(6.1)	255	(4.4)	109	3.02		(2.40)
08	515	(6.2)	250	(4.7)	107	(3.30)		(2.30)
09	510	(6.7)	240	(4.8)	105	3.48		(2.30)
10	525	(6.9)	245	(4.8)	105	(3.52)		(2.30)
11	470	(7.3)	<250	(4.8)	104	3.58		(2.40)
12	500	(7.3)	<250	(4.8)	105	(3.52)		(2.35)
13	490	(7.3)	240	(4.7)	103	(3.60)		(2.30)
14	490	(7.2)	240	(4.6)	105	(3.50)		(2.32)
15	500	(7.0)	240	4.6	105	(3.20)		(2.22)
16	(490)	(7.0)	240	(4.1)	109	(2.95)	3.6	(2.38)
17	470	(6.7)	270	(3.6)	109	(2.55)		(2.35)
18	---	(6.9)	280	---	110	(2.30)		(2.45)
19	---	(6.8)	300	---	111	----	2.8	2.50
20	---	6.25	300		---	----	2.5	2.45
21		(5.8)	300				4.2	(2.48)
22		(5.6)	290				4.3	(2.55)
23		(5.2)	290				4.2	(2.50)

Time: 105.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 70

Wilkes Station (66.2°S, 110.5°E) — September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.3)	260				1.6	(2.65)
01		(4.05)	280				2.0	(2.70)
02		(3.85)	270				1.2	(2.75)
03		(3.95)	275				(2.0)	(2.75)
04		(4.5)	260				(2.2)	(2.80)
05		(4.5)	265		---	----	(1.8)	(2.80)
06	---	(5.4)	<275	---	111	----	1.8	(2.72)
07	---	(6.0)	<265	---	<117	(2.40)		(2.80)
08	(425)	(6.9)	250	---	115	(2.75)		(2.78)
09	(510)	(7.0)	250	(4.3)	113	(2.98)		(2.75)
10	(455)	7.25	<245	(4.6)	114	3.10		2.50
11	425	(8.0)	245	(4.7)	112	(3.25)		(2.52)
12	400	(8.3)	240	(4.6)	<115	(3.30)		(2.58)
13	425	(7.85)	250	4.6	111	(3.15)		(2.50)
14	(420)	(7.5)	245	(4.5)	<115	2.95		(2.58)
15	385	(7.1)	260	(4.0)	115	(2.70)		(2.60)
16	(400)	(7.1)	270	(3.4)	115	(2.35)		(2.62)
17	---	(7.15)	290	---	111	(1.90)		(2.62)
18	---	(6.6)	290	---	<141	----		(2.65)
19		(6.35)	<285		---	----		(2.65)
20		(5.4)	285				(2.0)	(2.60)
21		(5.7)	290					(2.55)
22		(5.2)	275				(1.4)	(2.80)
23		(4.6)	<260				1.7	(2.80)

Time: 105.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 71

Freiburg, Germany (48.1°N, 7.6°E) — July 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.3	305				(2.4)	2.55
01		6.9	305				(2.4)	2.55
02		6.4	300				(2.4)	2.55
03		6.2	290				(2.0)	2.60
04	---	6.3	275	---	---	1.40	2.4	2.65
05	(465)	6.7	255	4.0	115	2.40	2.9	2.70
06	405	7.0	240	4.7	107	2.95	3.4	2.75
07	360	7.6	235	5.1	105	3.30	4.0	2.75
08	380	8.2	225	5.3	103	3.60	4.6	2.75
09	400	8.3	220	5.5	103	3.80	4.5	2.75
10	390	8.4	(220)	5.6	103	3.90	5.0	2.65
11	405	8.5	215	5.9	103	3.95	4.6	2.60
12	410	8.4	220	5.8	103	3.95	4.6	2.60
13	410	8.1	225	5.8	105	4.00	4.3	2.65
14	390	8.1	230	5.6	105	3.90	4.2	2.65
15	375	8.2	225	5.5	105	3.70	4.2	2.70
16	360	7.9	230	5.3	105	3.40	4.0	2.70
17	335	8.0	240	4.7	107	3.05	3.7	2.75
18	(285)	8.2	250		111	2.50	(4.0)	2.80
19		8.3	275		---	<1.60	(3.8)	2.90
20		8.0	270				(2.6)	2.70
21		7.9	290				(3.5)	2.55
22		7.7	300				(2.8)	2.60
23		7.6	300				(2.1)	2.55

Time: 0.0°.
Sweep: 1.25 Mc to 20.0 Mc in 3 minutes.

Table 72*

Campbell I. (52.5°S, 169.2°E) — October 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	6.0			<130	2.1		2.8
06	250	6.6	---	---	115	2.6		2.9
07	250	7.2	240	4.4	110	3.0		2.85
08	270	7.9	230	4.6	110	3.3		2.8
09	300	8.0	230	5.0	110	3.5		2.7
10	350	8.3	220	5.4	110	3.6		2.7
11	360	8.4	210	5.4	110	3.6		2.7
12	380	8.6	220	5.4	110	3.6		2.6
13	390	8.6	220	5.3	110	3.6		2.6
14	370	8.6	220	5.2	110	3.4		2.6
15	350	8.8	230	5.0	110	3.2		2.6
16	250	9.0	240	4.6	110	2.9		2.7
17	250	9.0	---	---	120	2.5		2.6
18	270	9.0	---	---	(140)	1.9		2.7
19	260	8.9			---	---		2.7
20	260	8.4						2.6
21	280	7.3						2.6
22	300	7.0						2.5
23	300	6.8					2.8	2.5

Time: 165.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.
*Observations taken on a 19-hour working schedule.

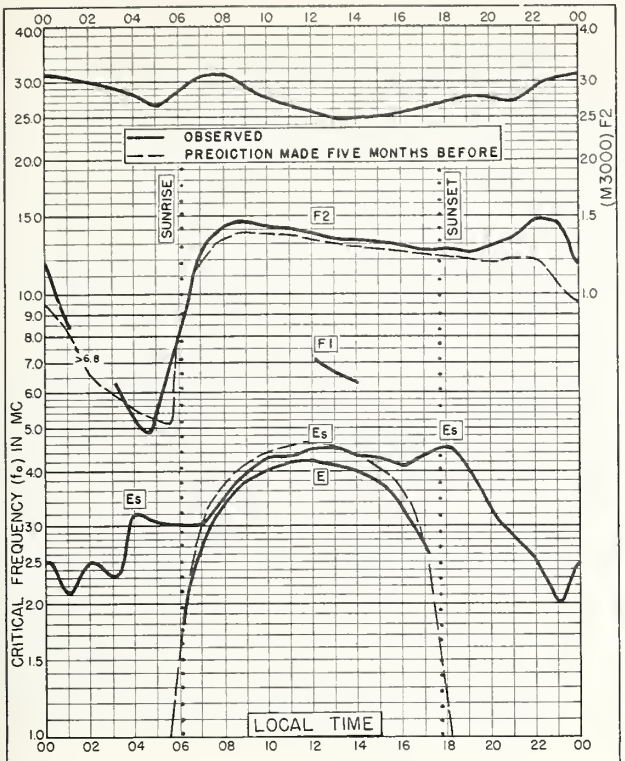


Fig. 1. BOGOTA, COLOMBIA
4.5°N, 74.2°W DECEMBER 1958

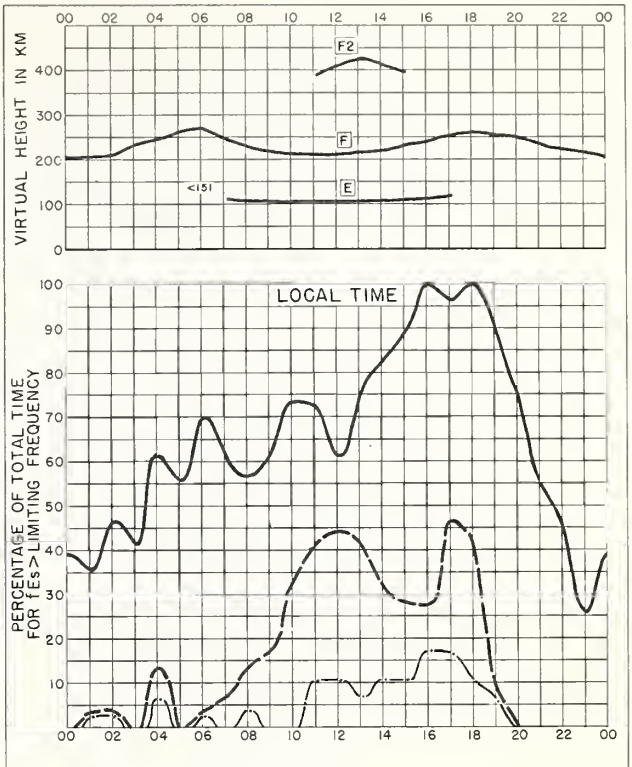


Fig. 2. BOGOTA, COLOMBIA DECEMBER 1958

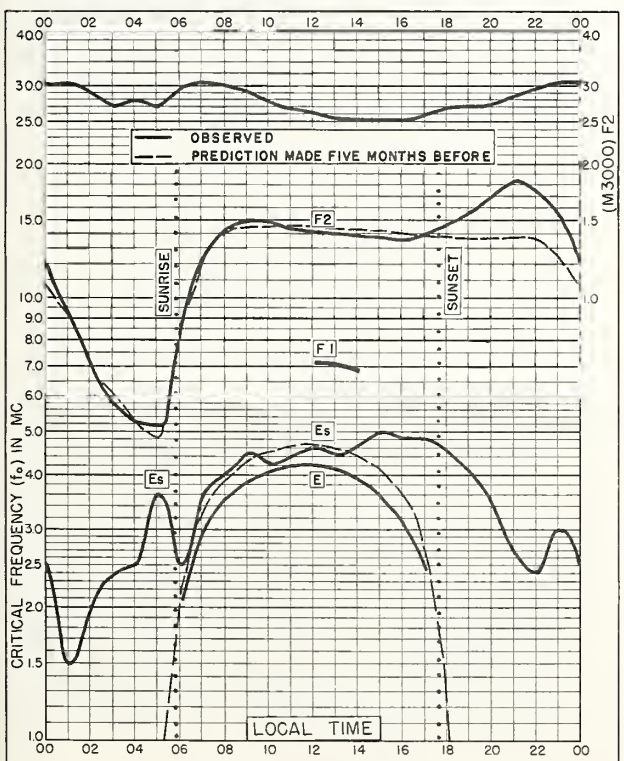


Fig. 3. BOGOTA, COLOMBIA
4.5°N, 74.2°W NOVEMBER 1958

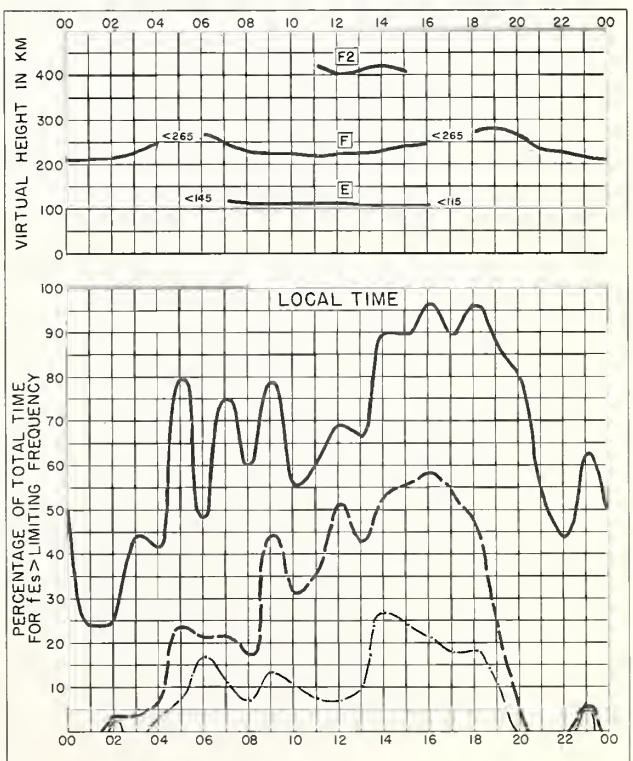


Fig. 4. BOGOTA, COLOMBIA NOVEMBER 1958

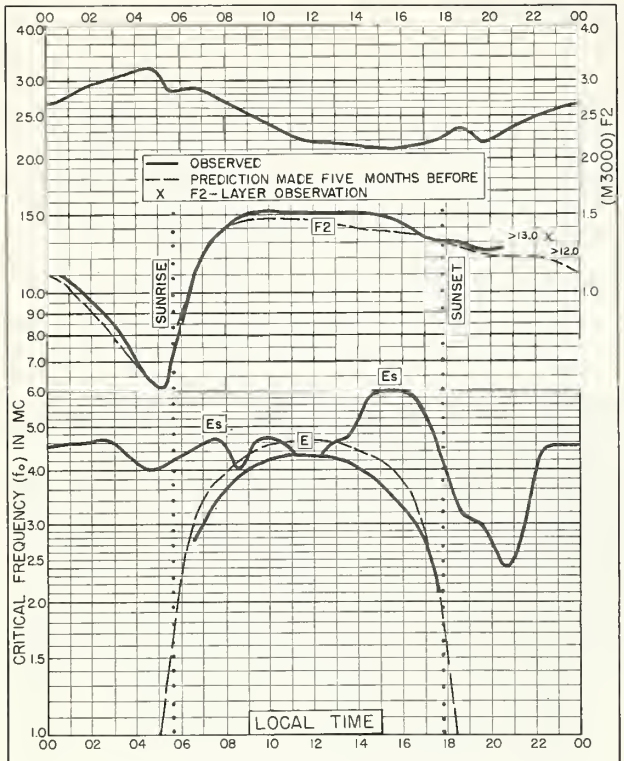


Fig. 5. TALARA, PERU
4.6°S, 81.3°W NOVEMBER 1958

NBS 503

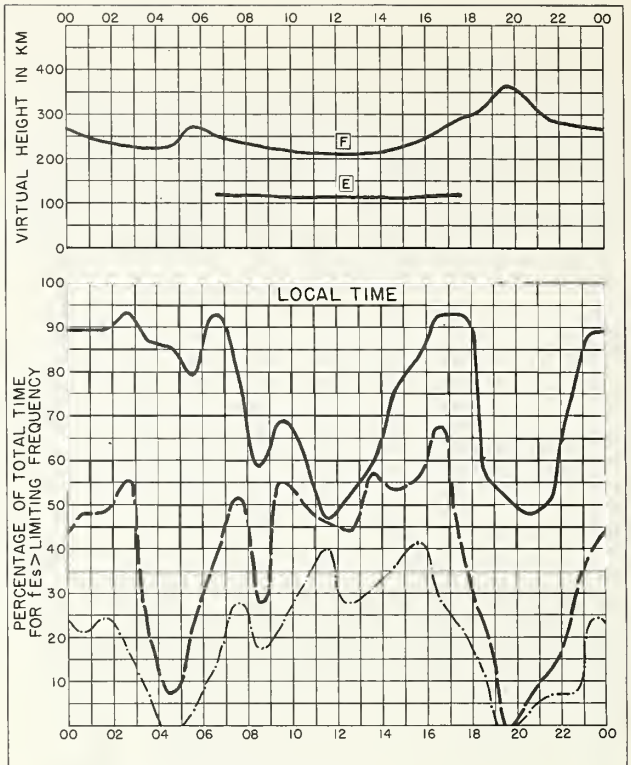


Fig. 6. TALARA, PERU NOVEMBER 1958

NBS 490

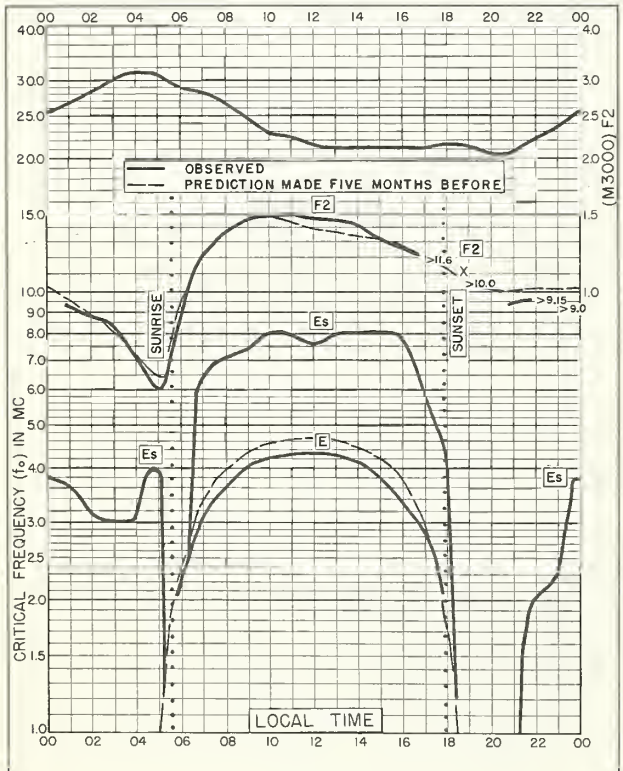


Fig. 7. CHIMBOTE, PERU
9.1°S, 78.6°W NOVEMBER 1958

NBS 503

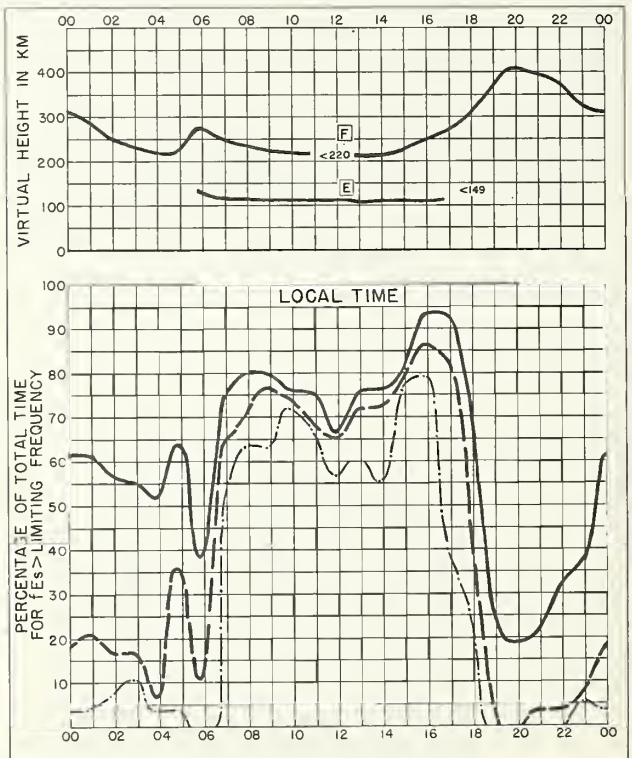


Fig. 8. CHIMBOTE, PERU NOVEMBER 1958

NBS 490

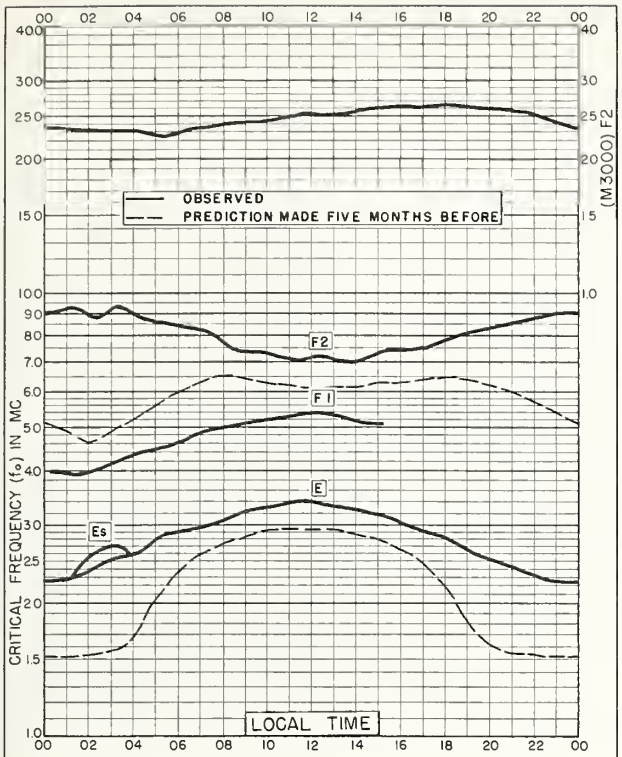


Fig. 9. ELLSWORTH
77.7°S, 41.1°W NOVEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

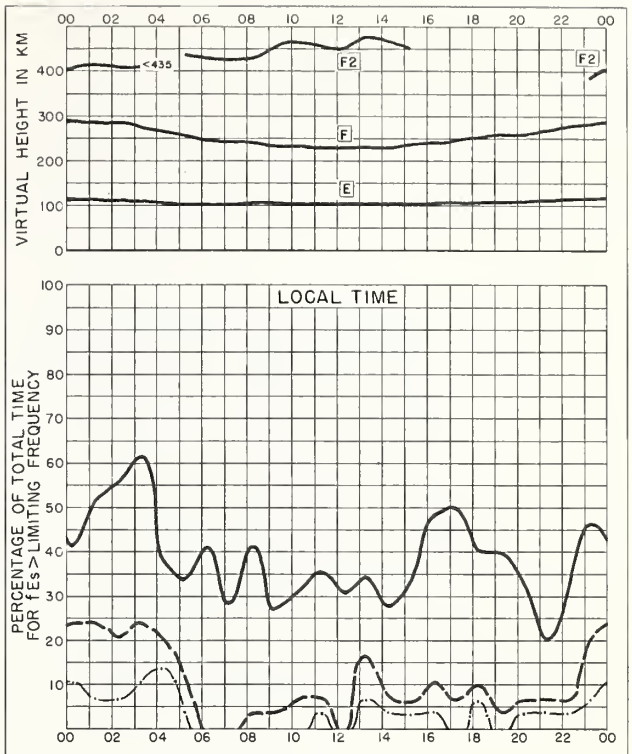


Fig. 10. ELLSWORTH NOVEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

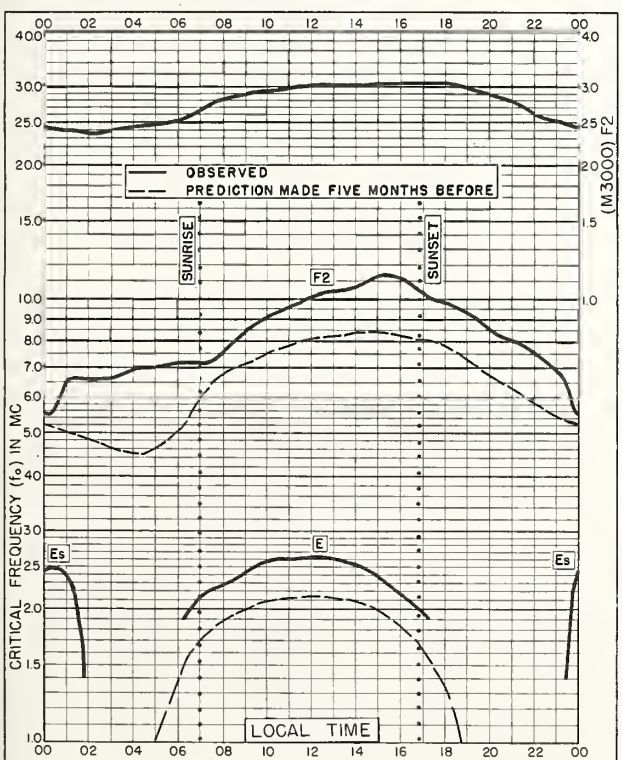


Fig. 11. ELLSWORTH
77.7°S, 41.1°W SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 503

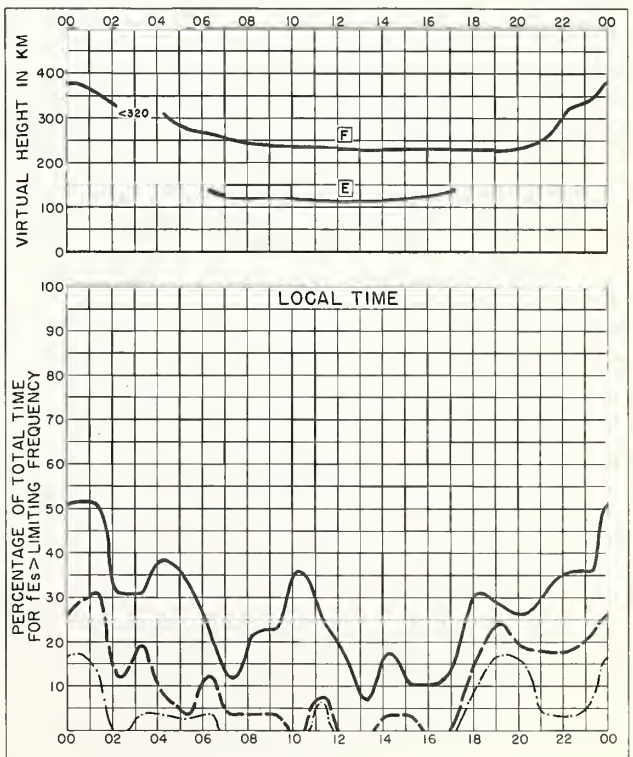


Fig. 12. ELLSWORTH SEPTEMBER 1958

Commerce-Standards-Boulder, Colo. NBS 490

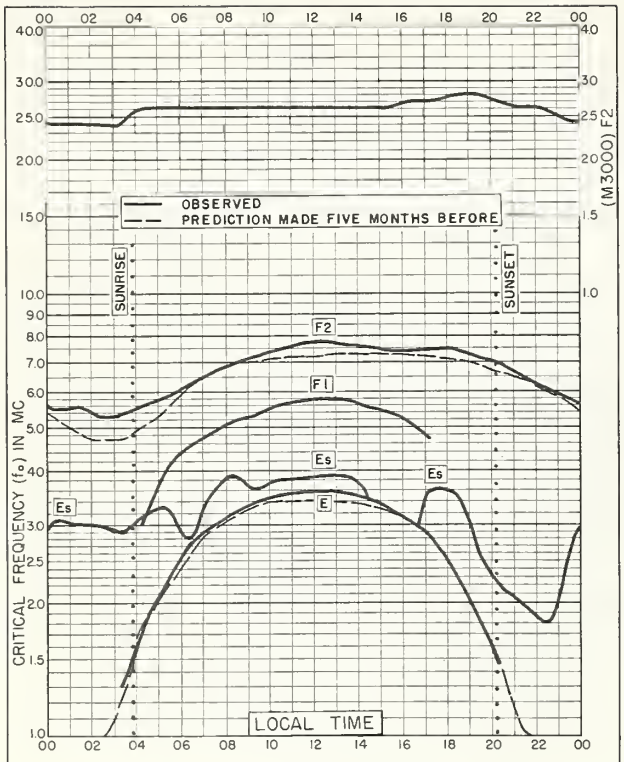


Fig. 13. LYCKSELE, SWEDEN
64.6°N, 18.8°E AUGUST 1958

NBS 503

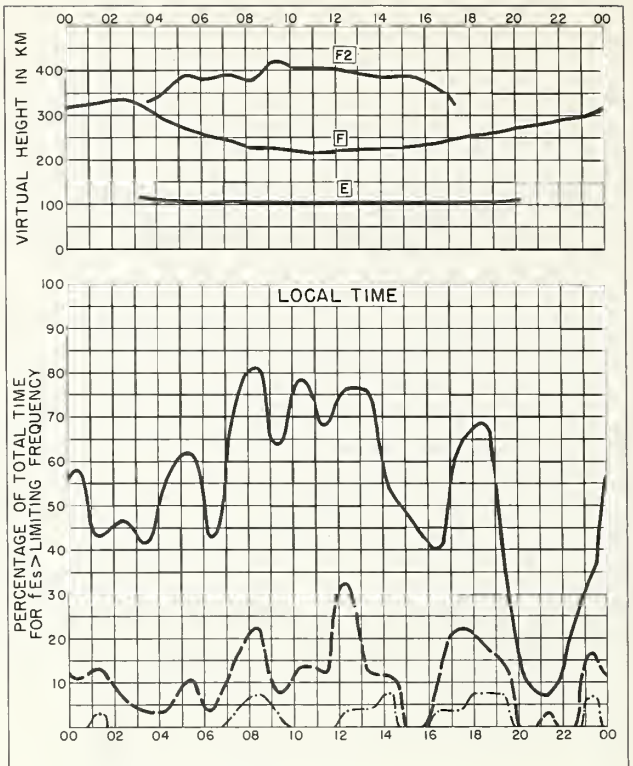


Fig. 14. LYCKSELE, SWEDEN AUGUST 1958

NBS 490

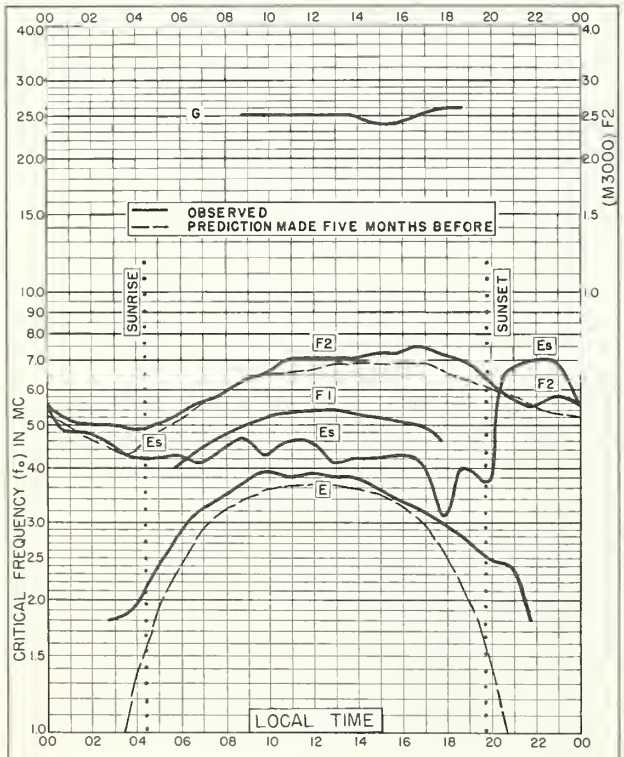


Fig. 15. CHURCHILL, CANADA
58.8°N, 94.2°W AUGUST 1958

NBS 503

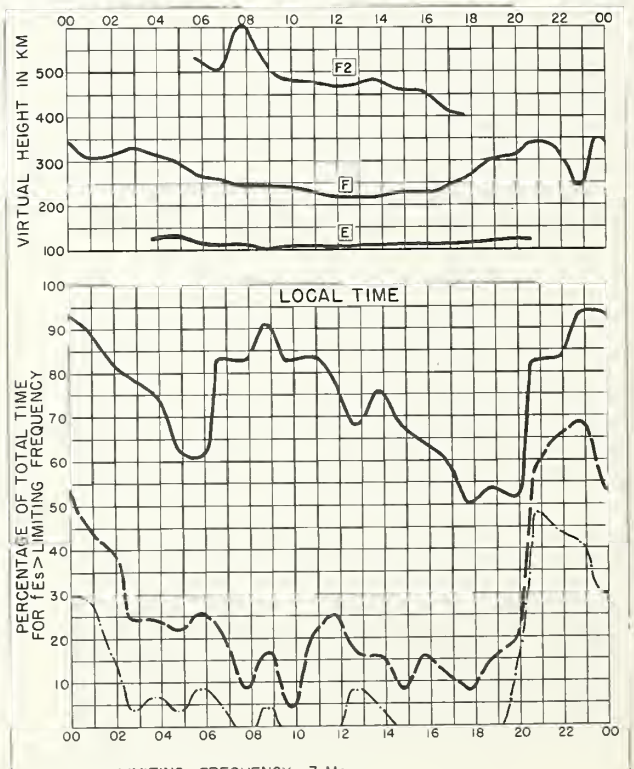


Fig. 16. CHURCHILL, CANADA AUGUST 1958

NBS 490

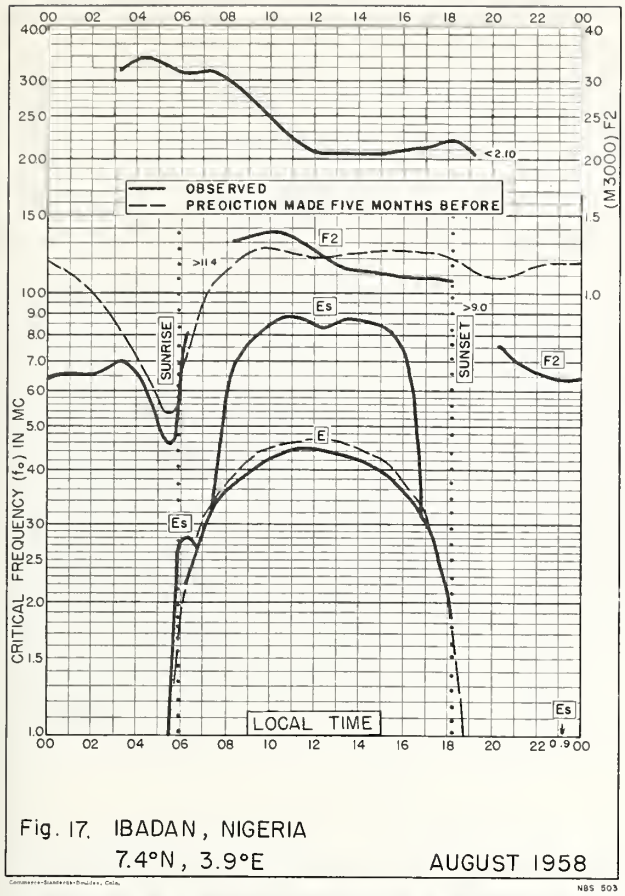


Fig. 17. IBADAN, NIGERIA
7.4°N, 3.9°E AUGUST 1958

NBS 503

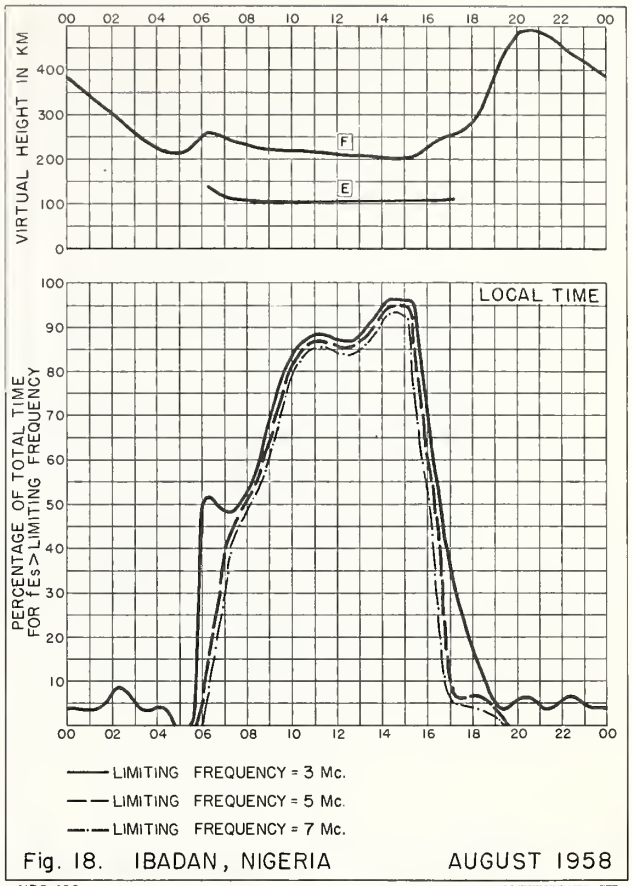


Fig. 18. IBADAN, NIGERIA AUGUST 1958

NBS 490

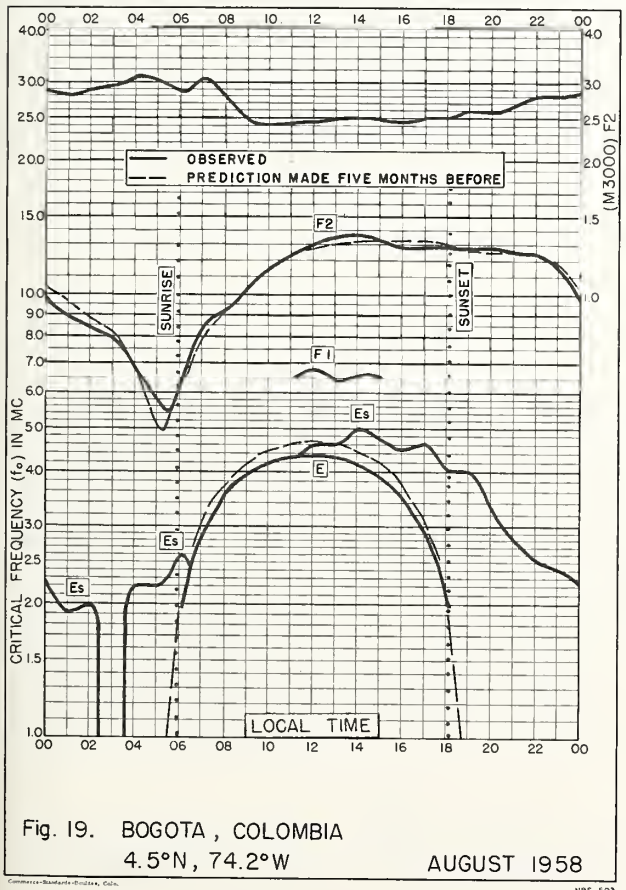


Fig. 19. BOGOTA, COLOMBIA
4.5°N, 74.2°W AUGUST 1958

NBS 503

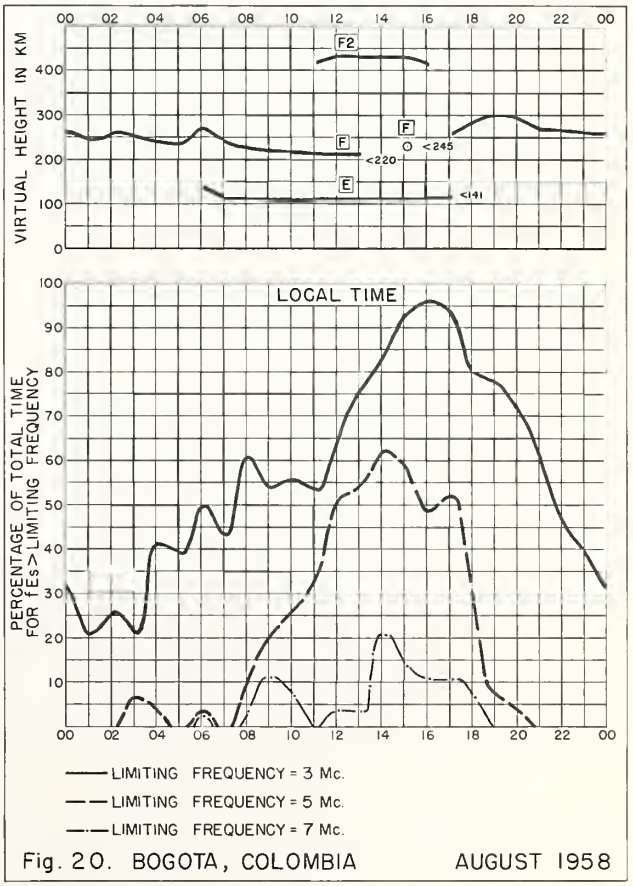


Fig. 20. BOGOTA, COLOMBIA AUGUST 1958

NBS 490

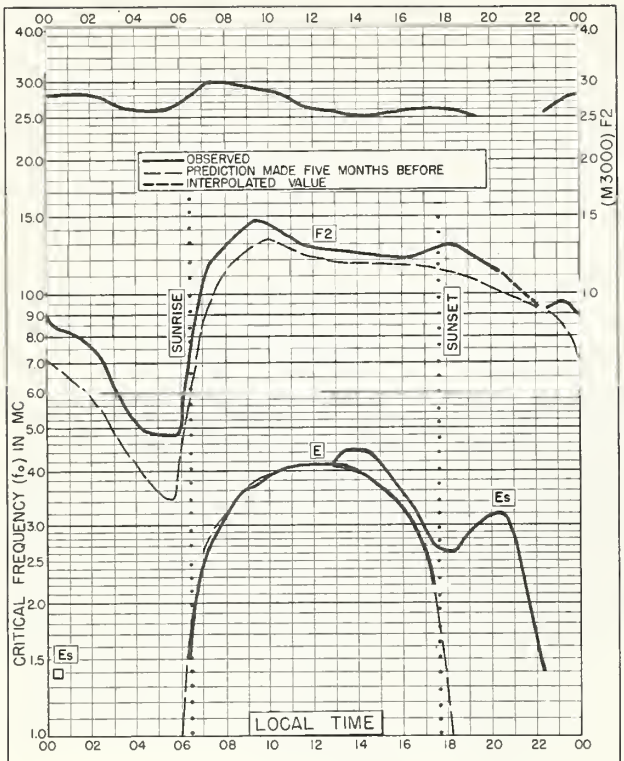


Fig. 21. RAROTONGA I.
21.2°S, 159.8°W AUGUST 1958

NBS 503

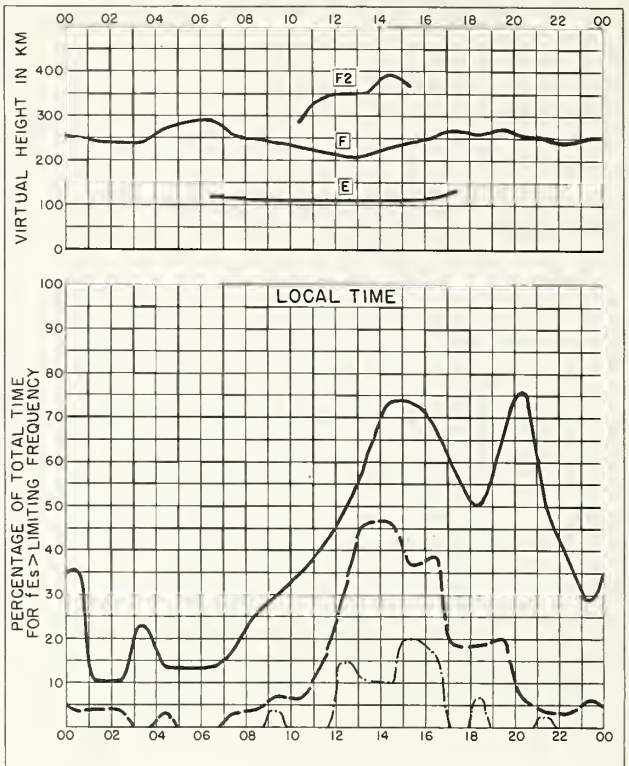


Fig. 22. RAROTONGA I. AUGUST 1958

NBS 490

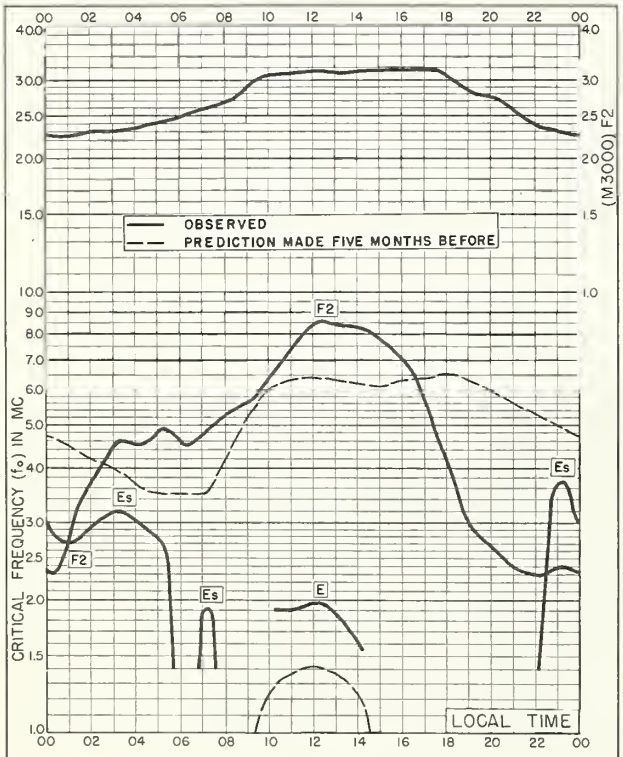


Fig. 23. ELLSWORTH
77.7°S, 41.1°W AUGUST 1958

NBS 503

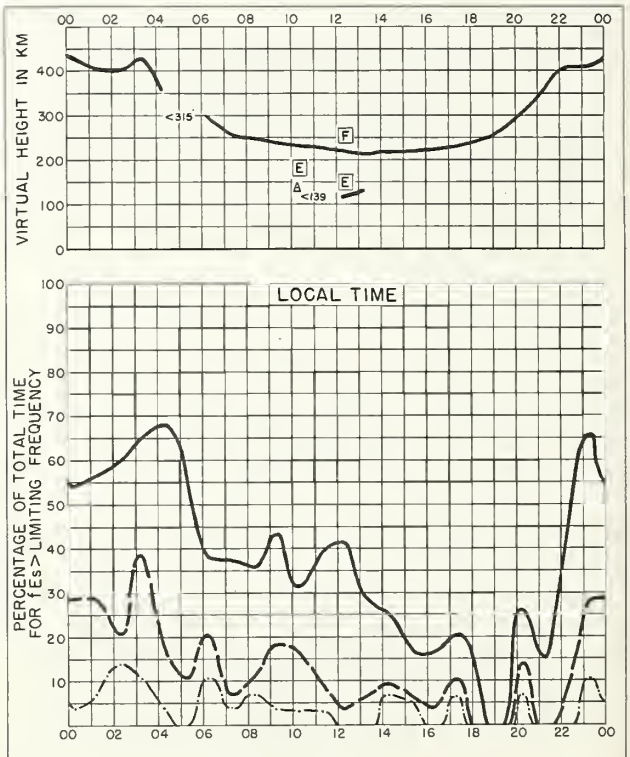


Fig. 24. ELLSWORTH AUGUST 1958

NBS 490

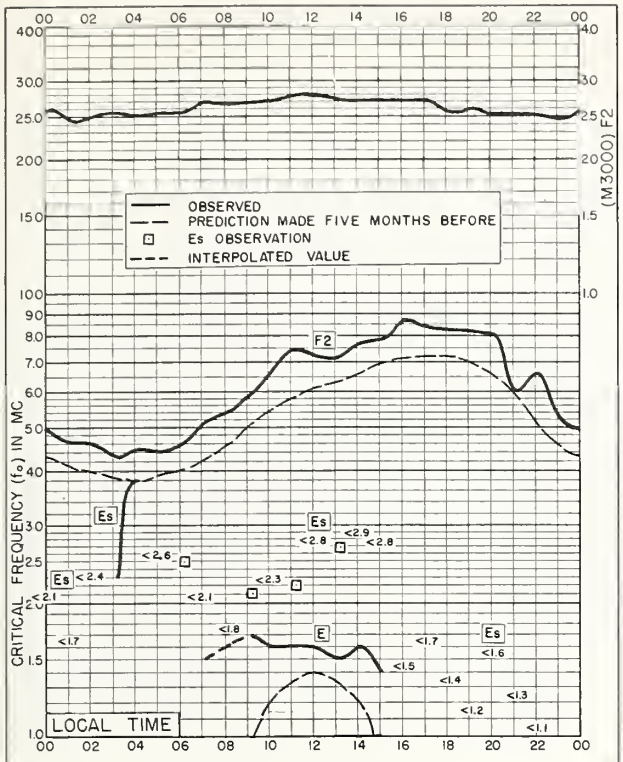


Fig. 25. SCOTT BASE
77.8°S, 166.8°E AUGUST 1958

Commerce-Standards-Boulder, Colo. NBS 503

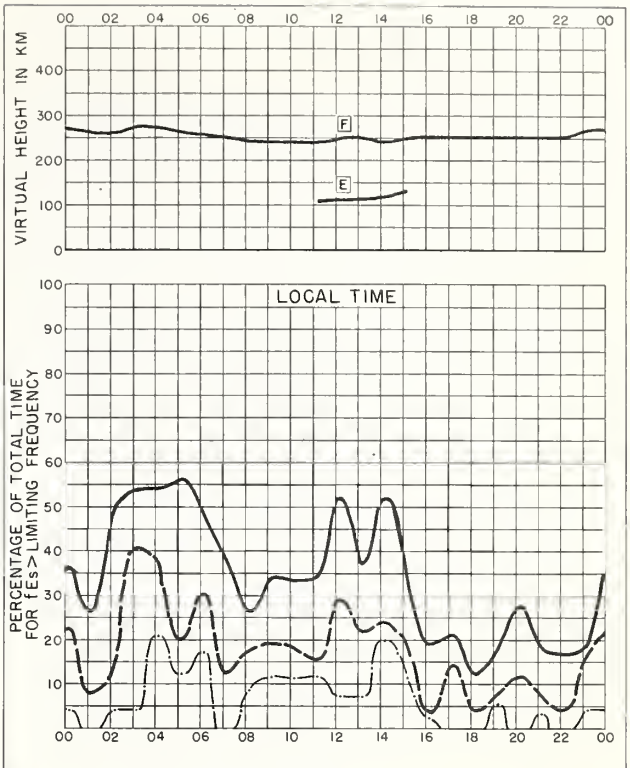


Fig. 26. SCOTT BASE AUGUST 1958

Commerce-Standards-Boulder, Colo. NBS 490

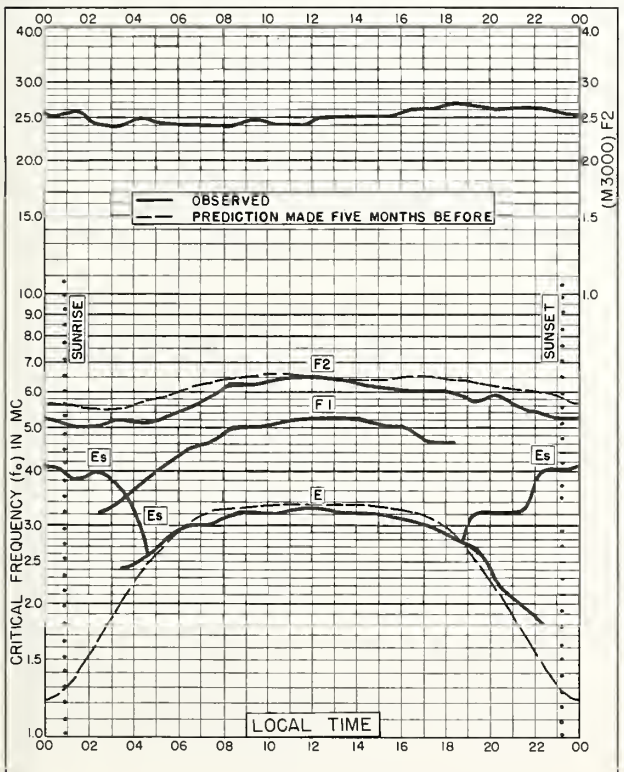


Fig. 27. KIRUNA, SWEDEN
67.8°N, 20.3°E JULY 1958

Commerce-Standards-Boulder, Colo. NBS 503

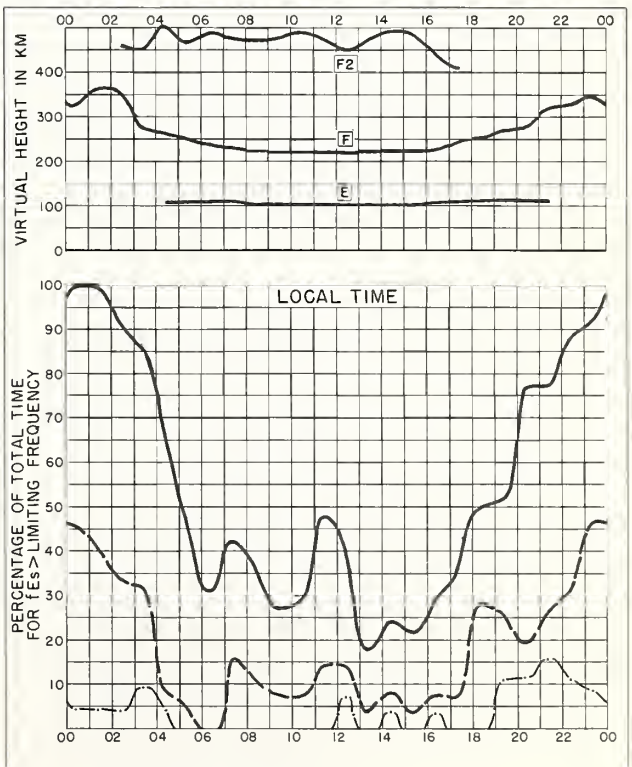


Fig. 28. KIRUNA, SWEDEN JULY 1958

Commerce-Standards-Boulder, Colo. NBS 490

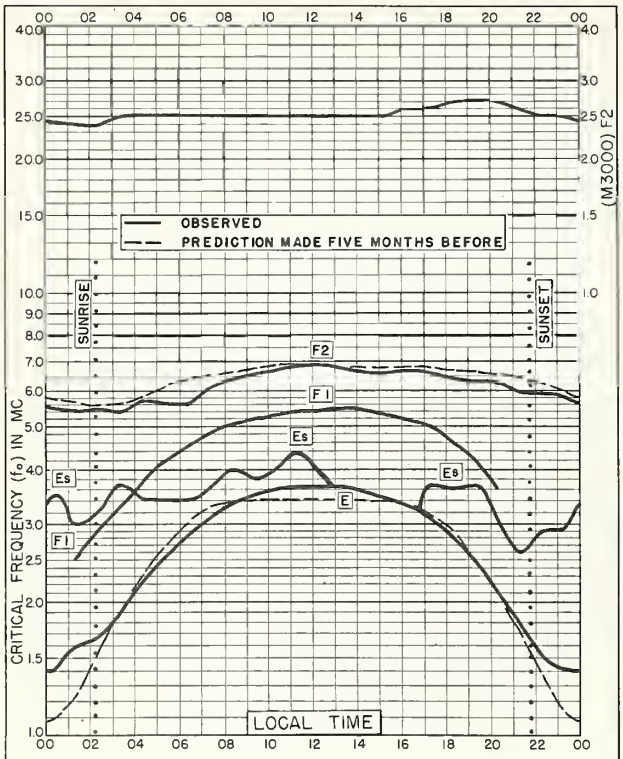


Fig. 29. LYCKSELE, SWEDEN
64.6°N, 18.8°E JULY 1958

NBS 503

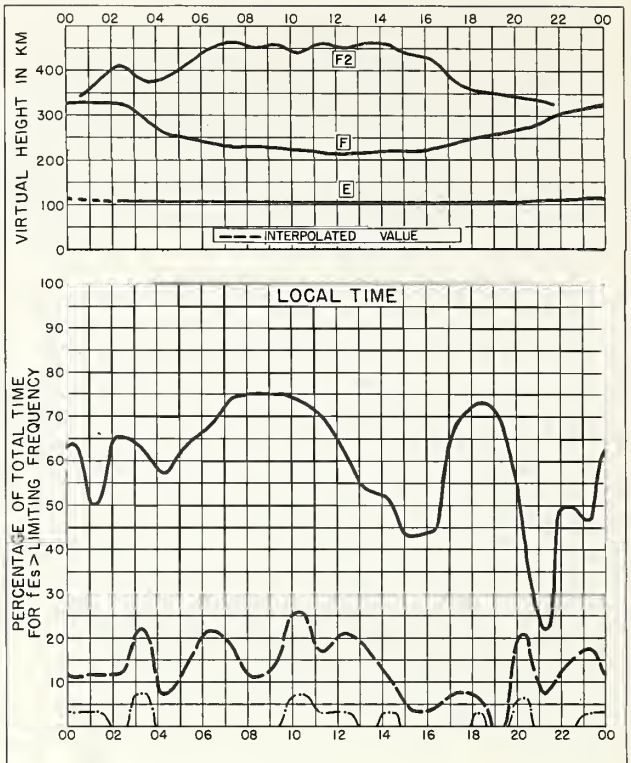


Fig. 30. LYCKSELE, SWEDEN JULY 1958

NBS 490

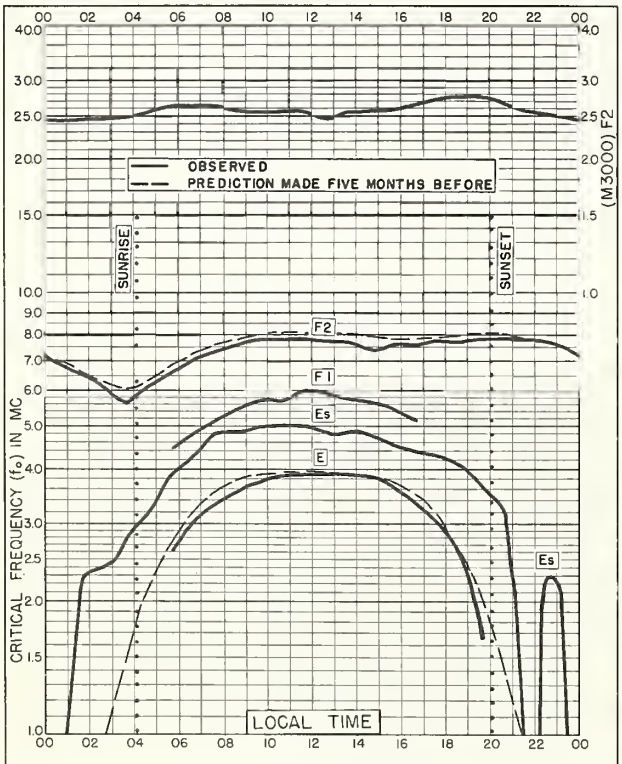


Fig.31. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JULY 1958

NBS 503

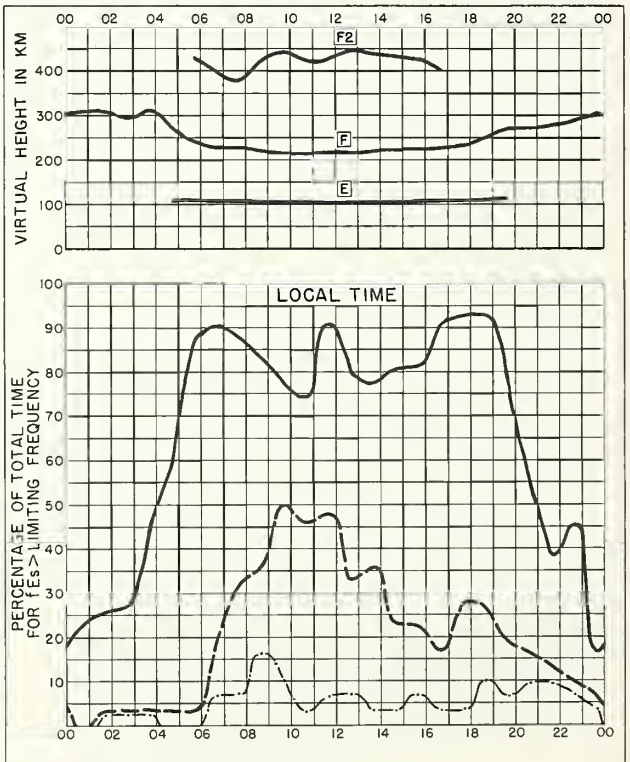


Fig. 32. LINDAU/HARZ, GERMANY JULY 1958

NBS 490

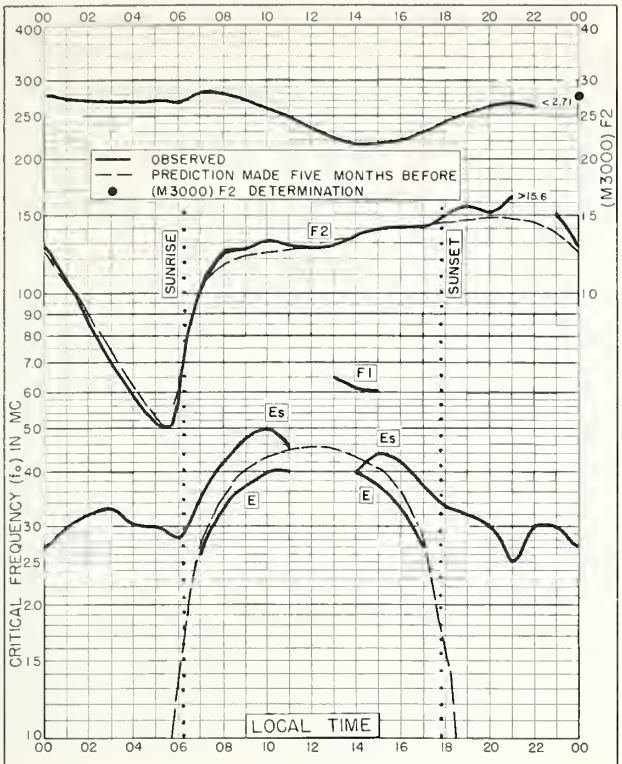


Fig. 33. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E JULY 1958

NBS 503

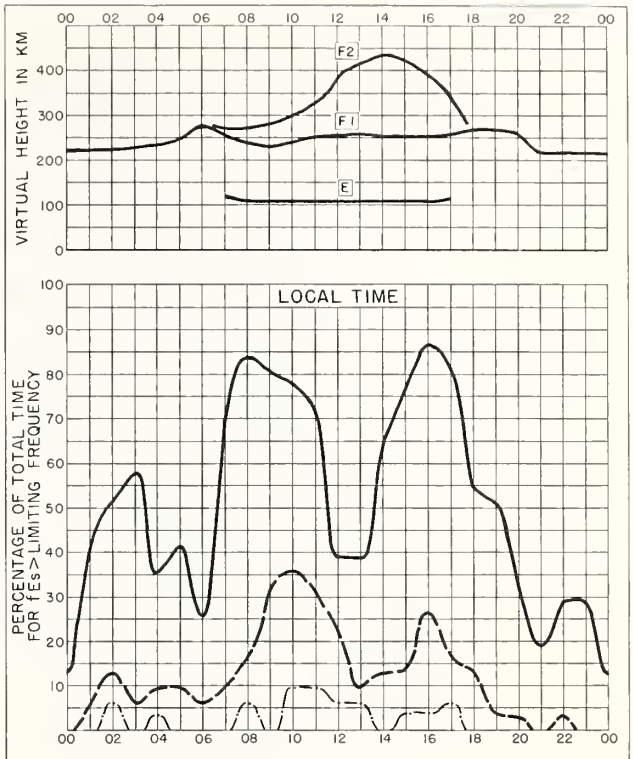


Fig. 34. LEOPOLDVILLE, BELGIAN CONGO JULY 1958

NBS 490

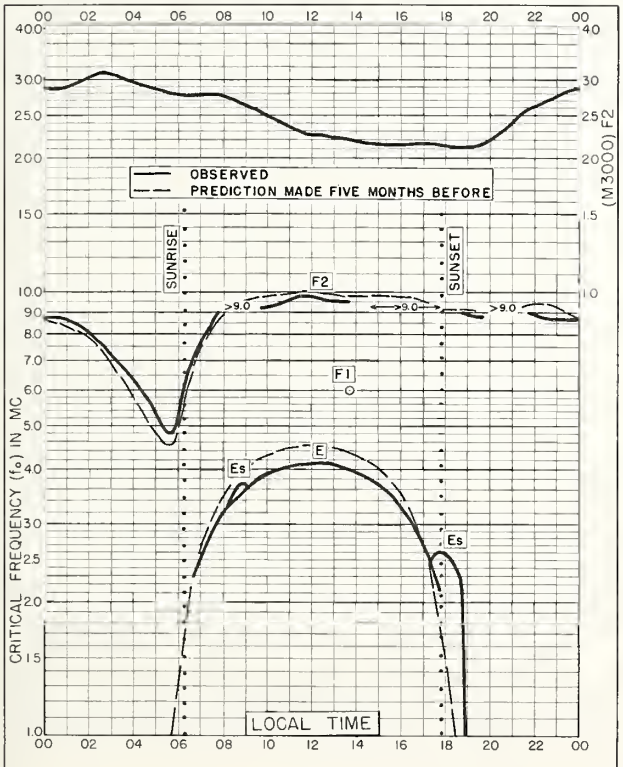


Fig. 35. CHICLAYO, PERU
6.8°S, 79.8°W JULY 1958

NBS 503

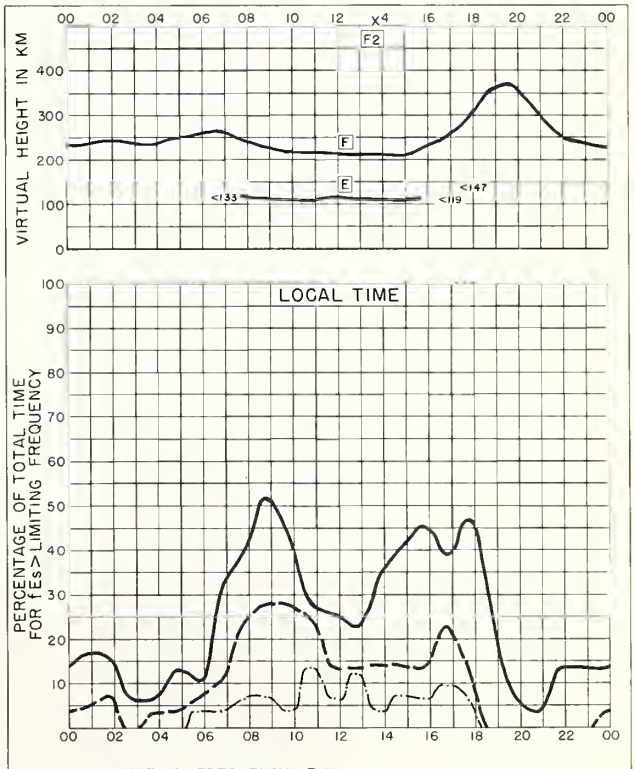


Fig. 36. CHICLAYO, PERU JULY 1958

NBS 490

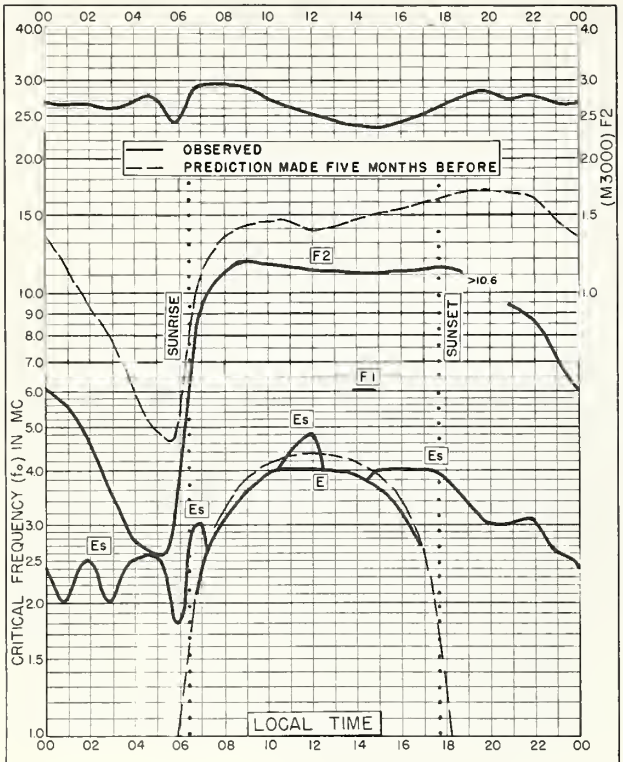


Fig. 37. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E JULY 1958

NBS 503

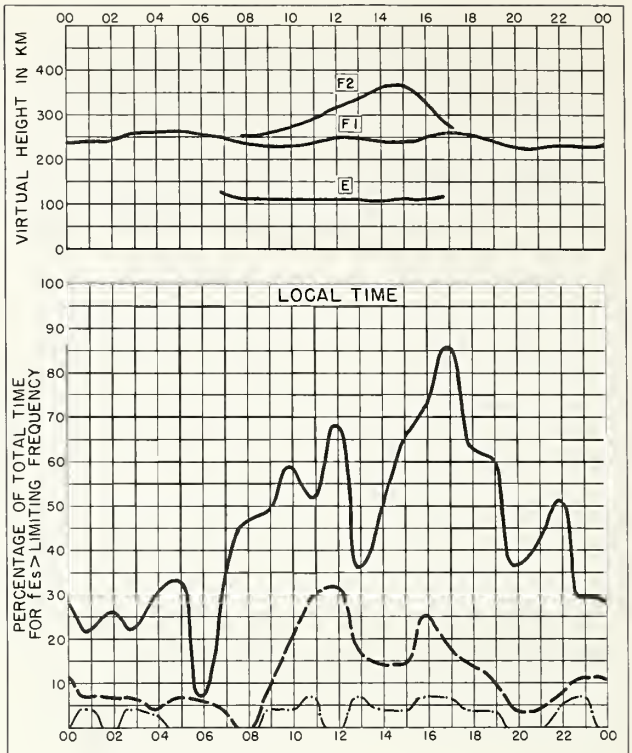


Fig. 38. ELISABETHVILLE, BELGIAN CONGO JULY 1958

NBS 490

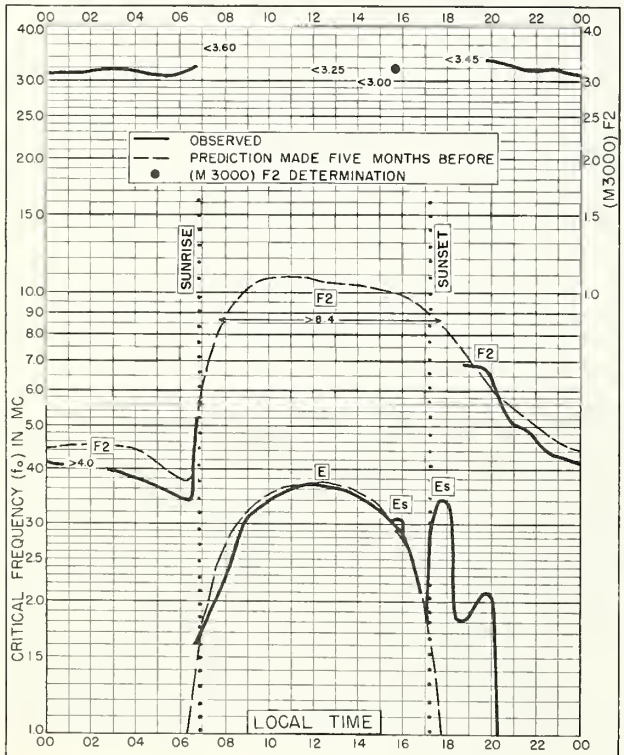


Fig. 39. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JULY 1958

NBS 503

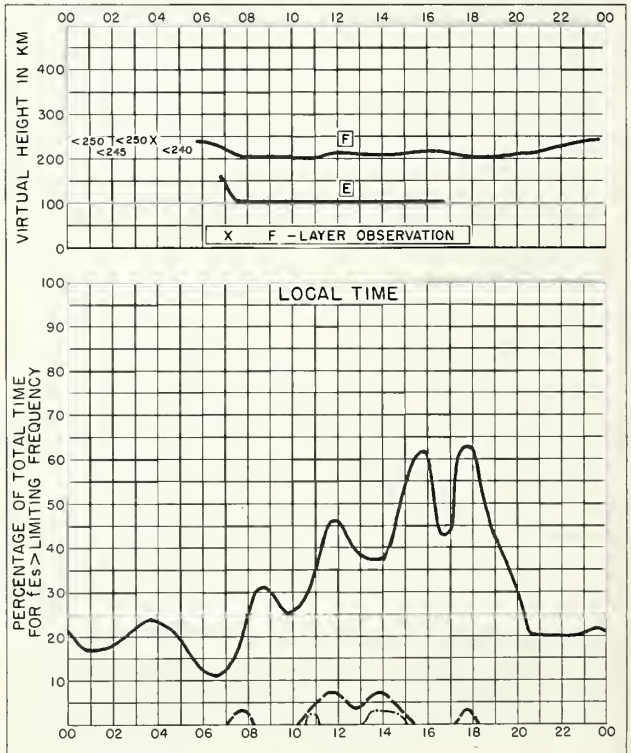


Fig. 40. WATHEROO, W. AUSTRALIA JULY 1958

NBS 490

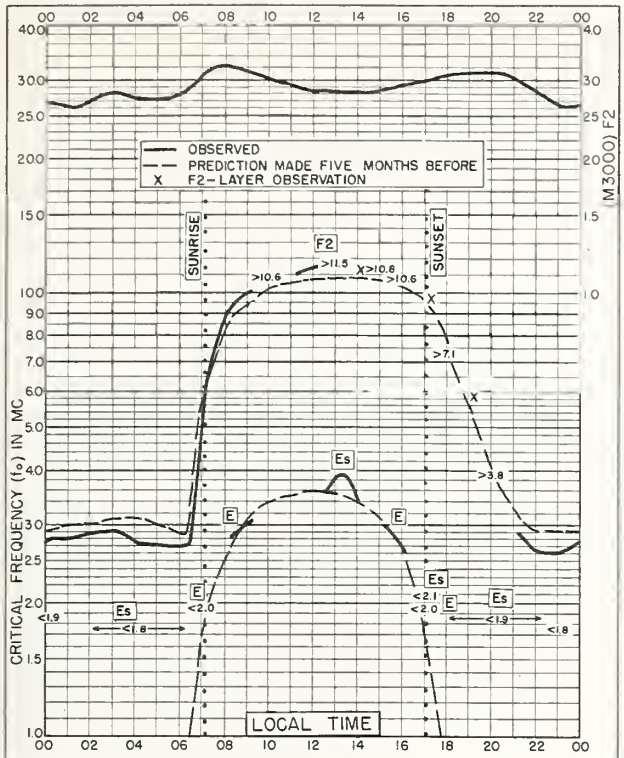


Fig. 41. CAPETOWN, UNION OF S. AFRICA
34.1°S, 18.3°E JULY 1958

Commerce-Standards-Boulder, Colo. NBS 503

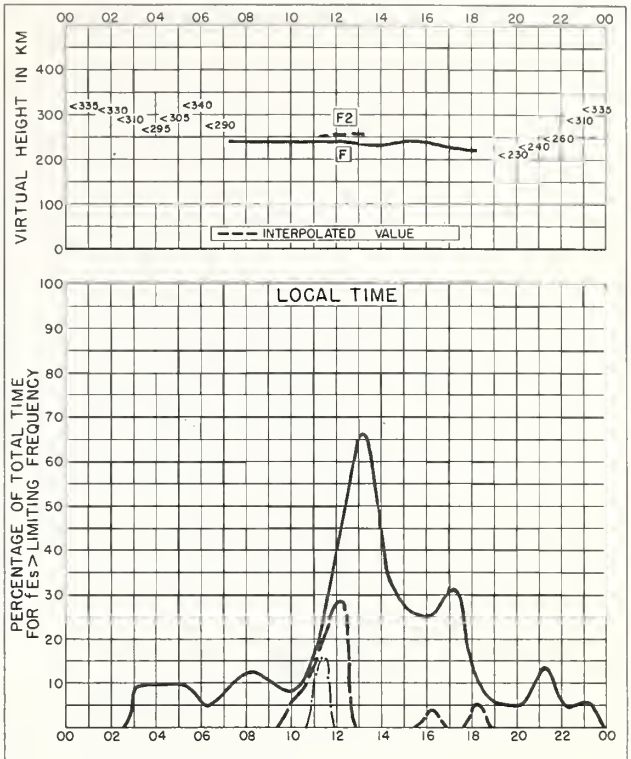


Fig. 42. CAPETOWN, UNION OF S. AFRICA
JULY 1958

Commerce-Standards-Boulder, Colo. NBS 490

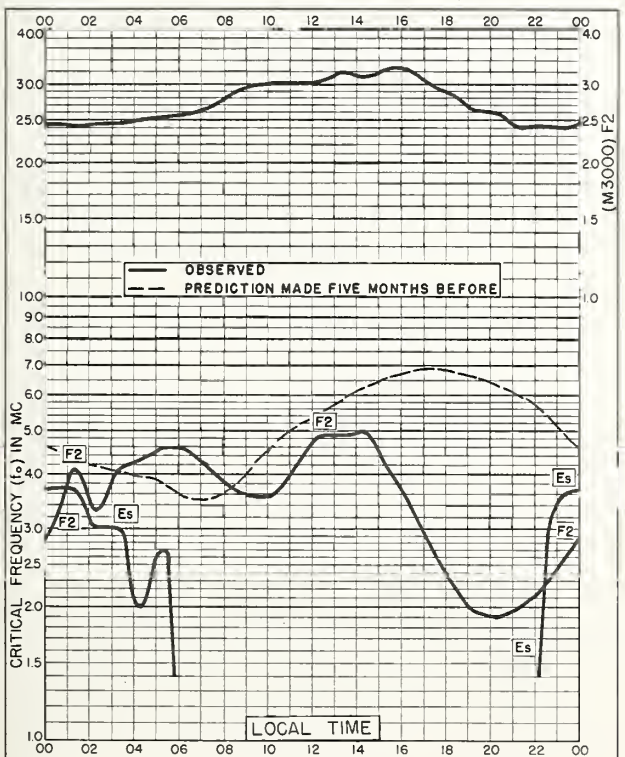


Fig. 43. ELLSWORTH
77.7°S, 41.1°W JULY 1958

Commerce-Standards-Boulder, Colo. NBS 503

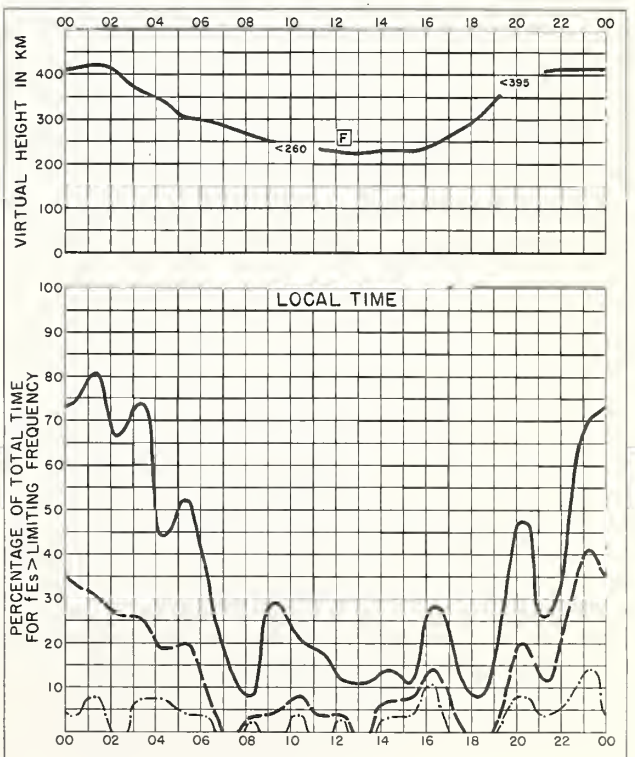


Fig. 44. ELLSWORTH JULY 1958

Commerce-Standards-Boulder, Colo. NBS 490

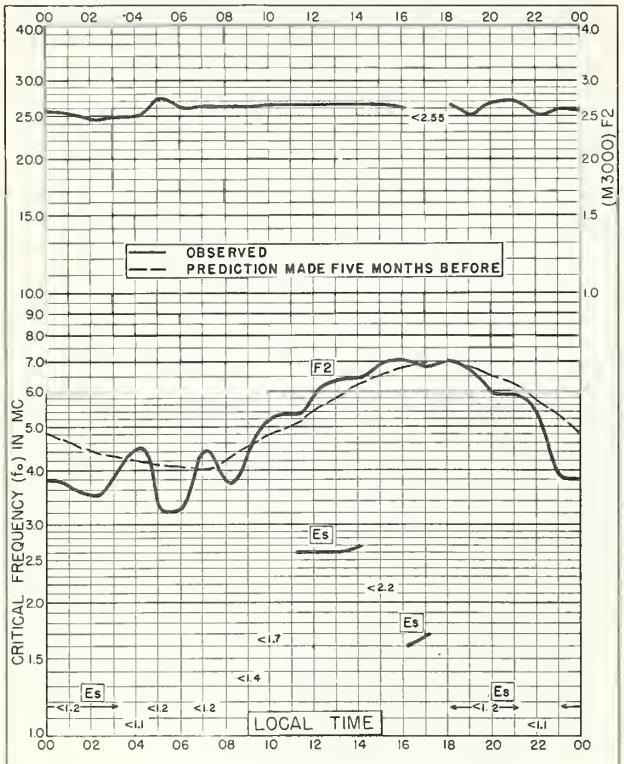


Fig. 45. SCOTT BASE
77.8°S, 166.8°E JULY 1958

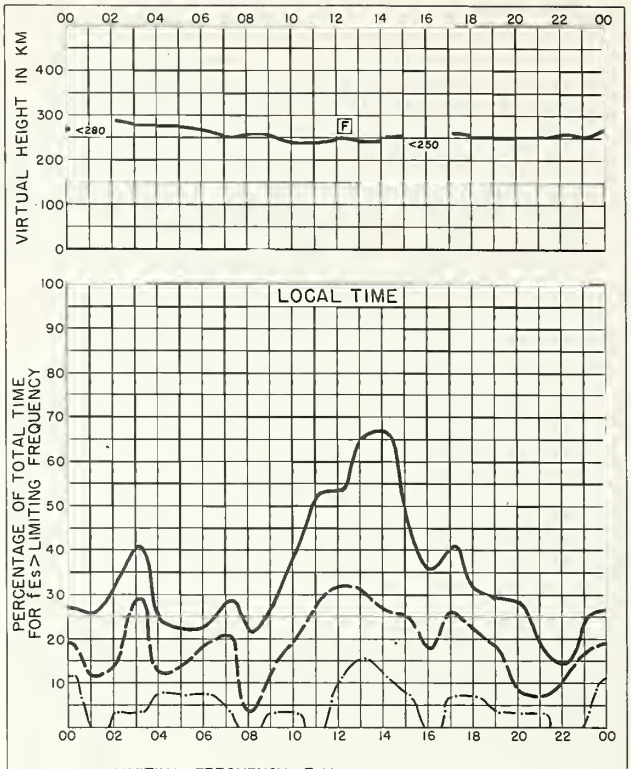


Fig. 46. SCOTT BASE JULY 1958

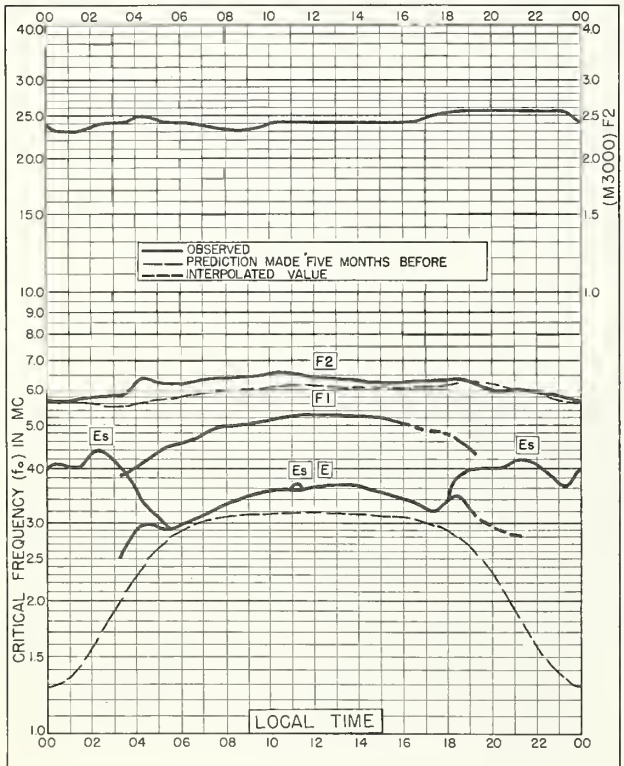


Fig. 47. TROMSO, NORWAY
69.7°N, 19.0°E JUNE 1958

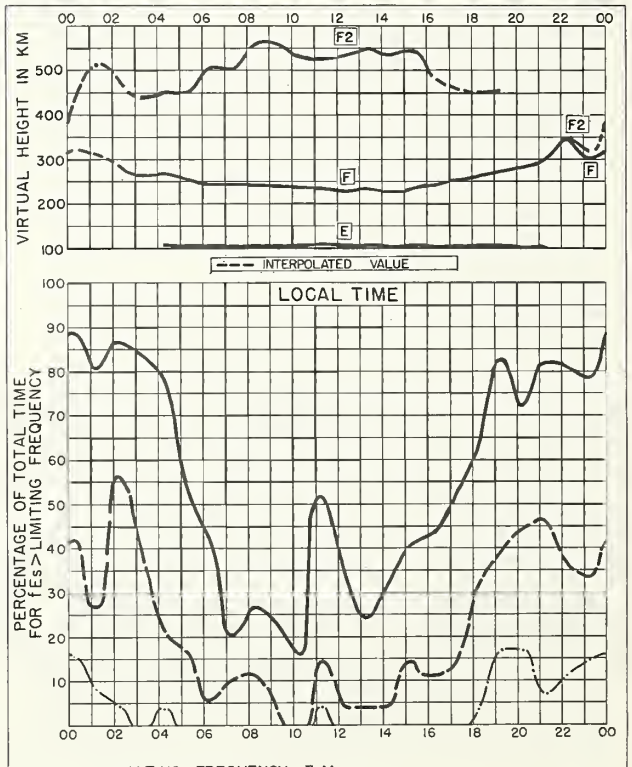


Fig. 48. TROMSO, NORWAY JUNE 1958

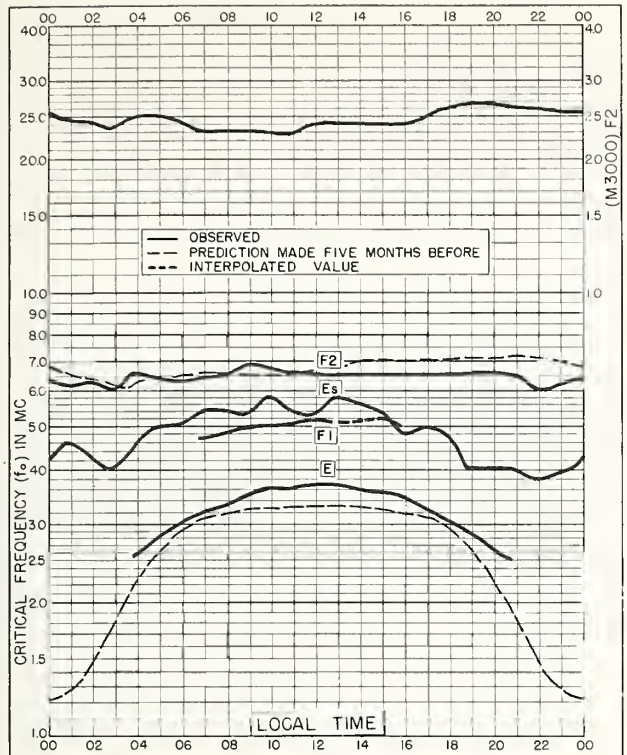


Fig. 49. SODANKYLA, FINLAND
67.4°N, 26.6°E JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 503

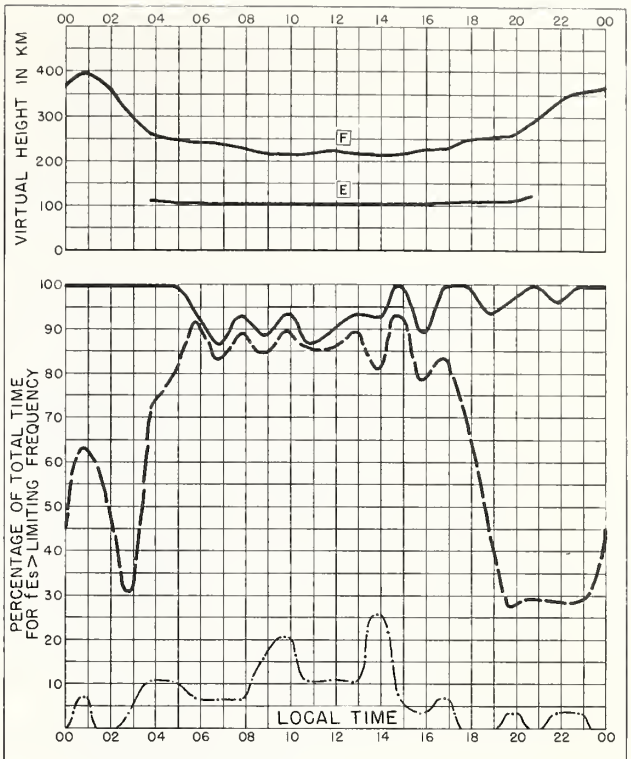


Fig. 50. SODANKYLA, FINLAND JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 490

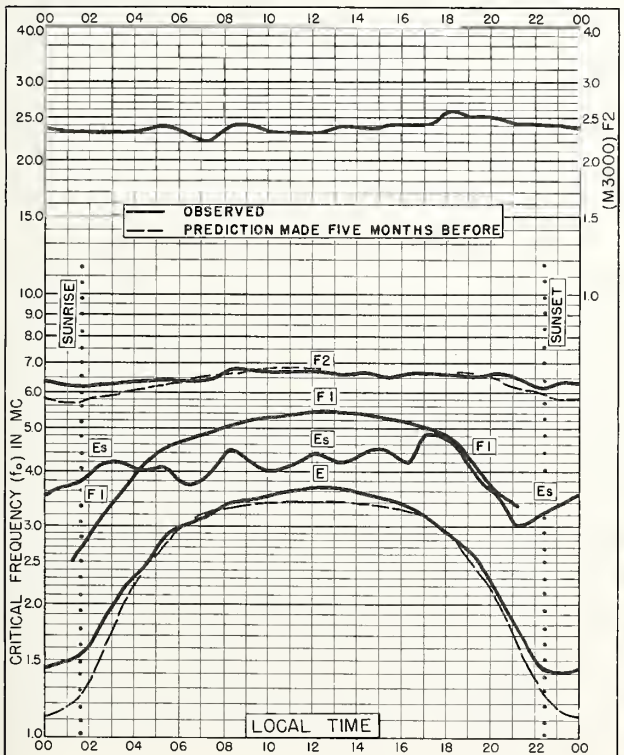


Fig. 51. LYCKSELE, SWEDEN
64.6°N, 18.8°E JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 503

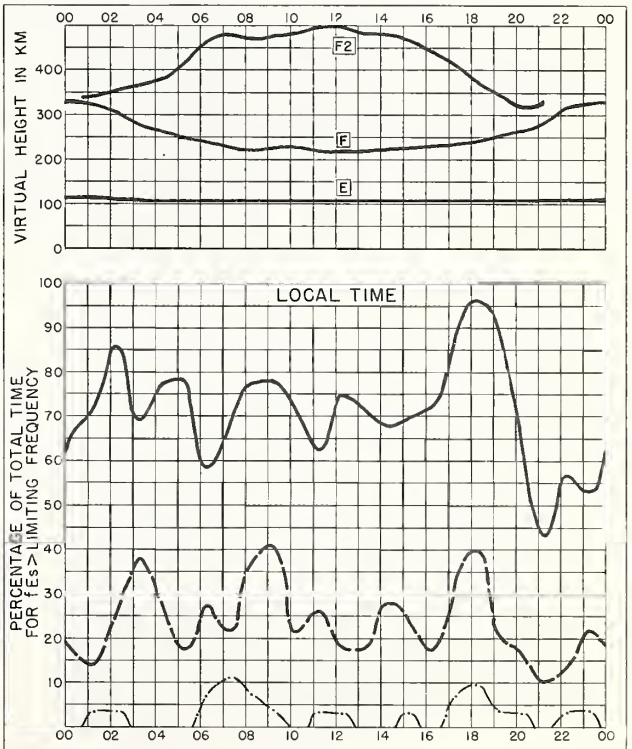


Fig. 52. LYCKSELE, SWEDEN JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 490

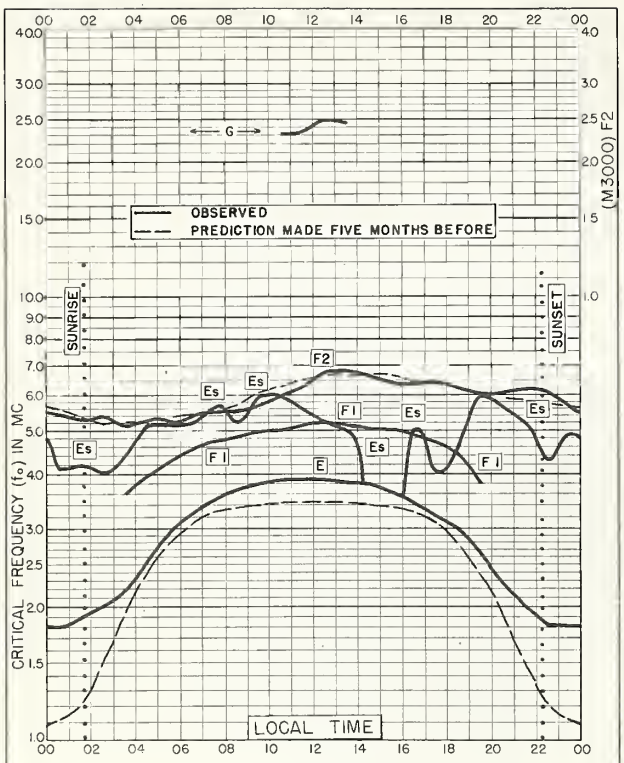


Fig. 53. BAKER LAKE, CANADA
64.3°N, 96.0°W JUNE 1958

NBS 503

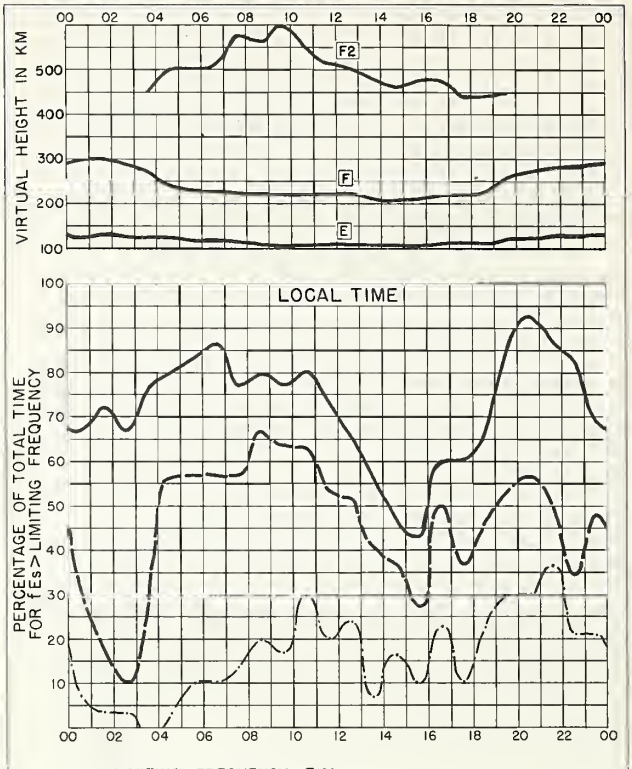


Fig. 54. BAKER LAKE, CANADA JUNE 1958

NBS 490

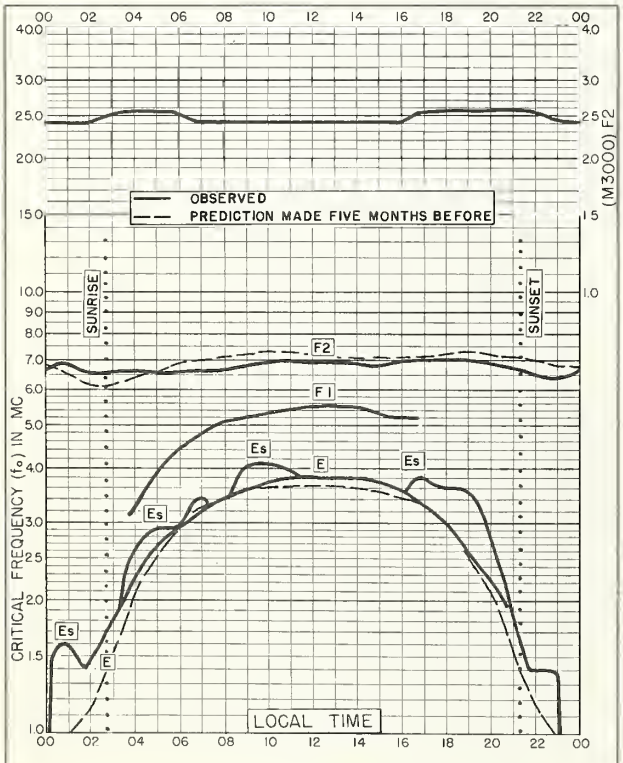


Fig. 55. OSLO, NORWAY
60.0°N, 11.1°E JUNE 1958

NBS 503

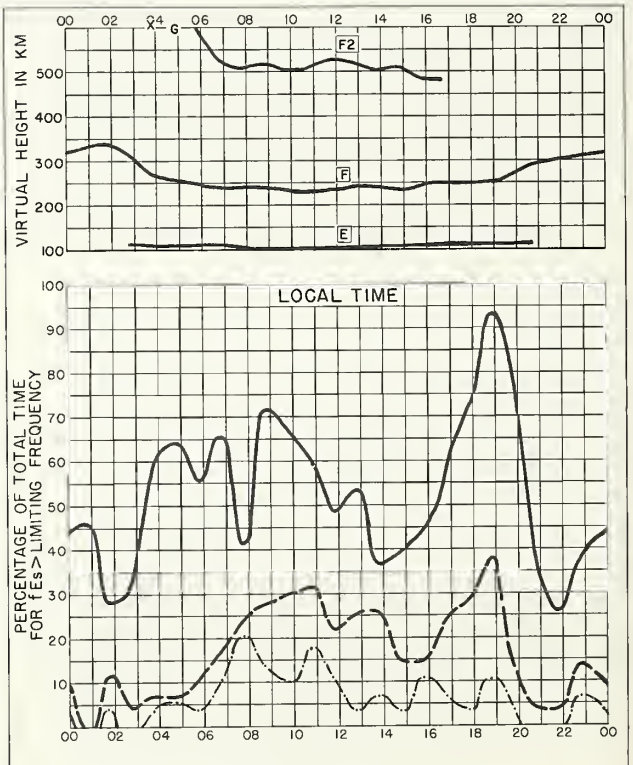


Fig. 56. OSLO, NORWAY JUNE 1958

NBS 490

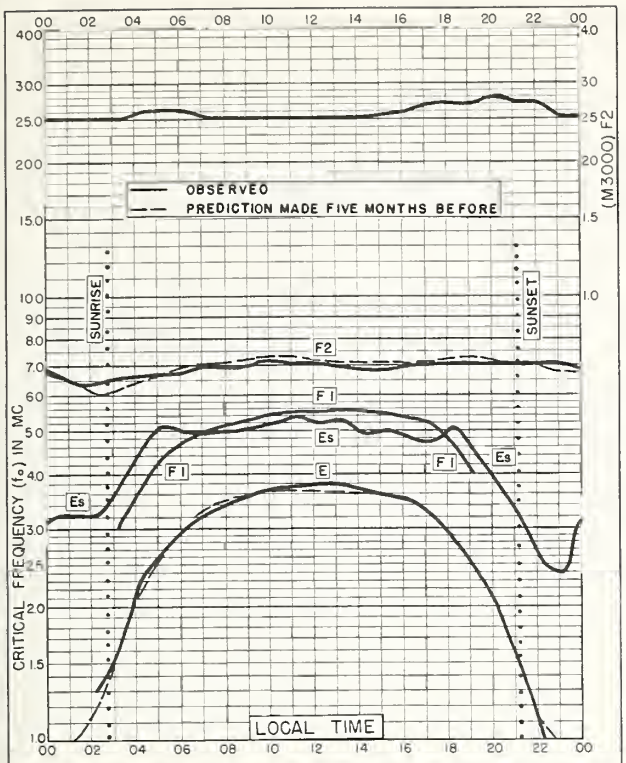


Fig. 57. UPSALA, SWEDEN
59.8°N, 17.6°E JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 503

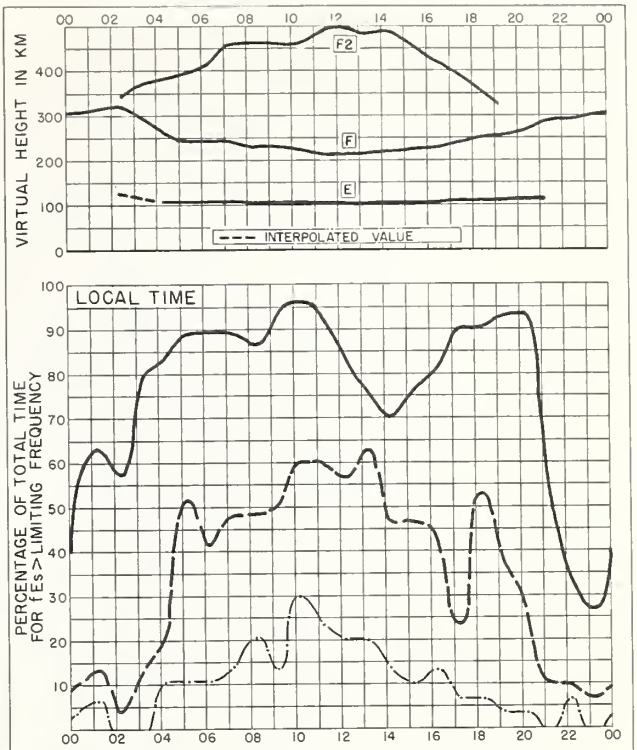


Fig. 58. UPSALA, SWEDEN JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 490

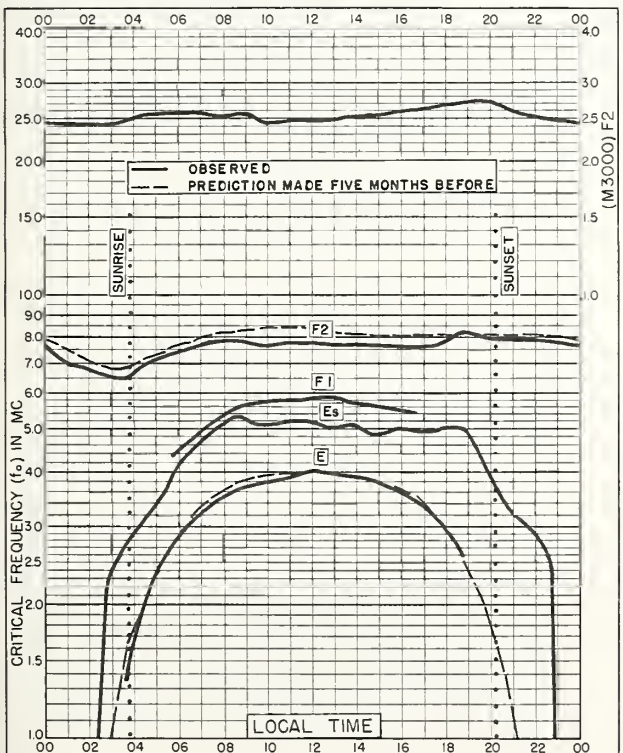


Fig. 59. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 503

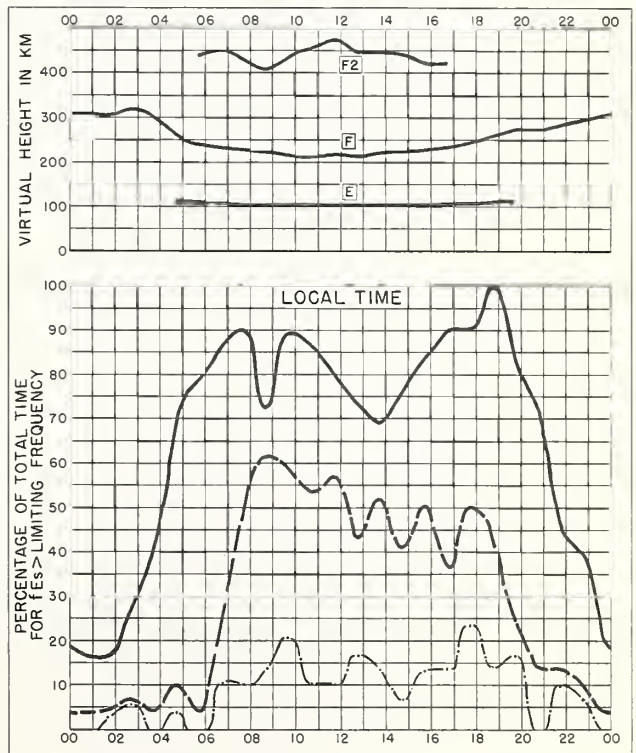


Fig. 60. LINDAU/HARZ, GERMANY JUNE 1958

Commerce-Standards-Boulder, Colo. NBS 490

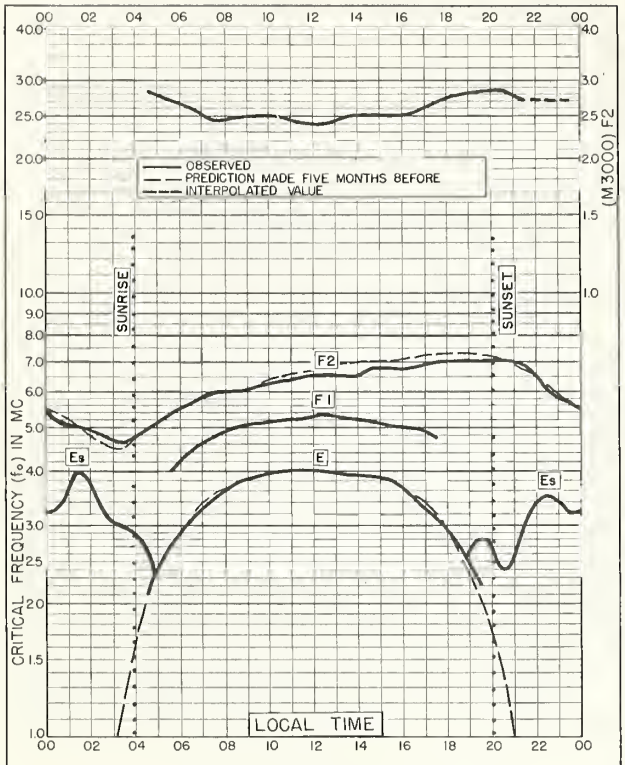


Fig. 61. WINNIPEG, CANADA
49.9°N, 97.4°W JUNE 1958

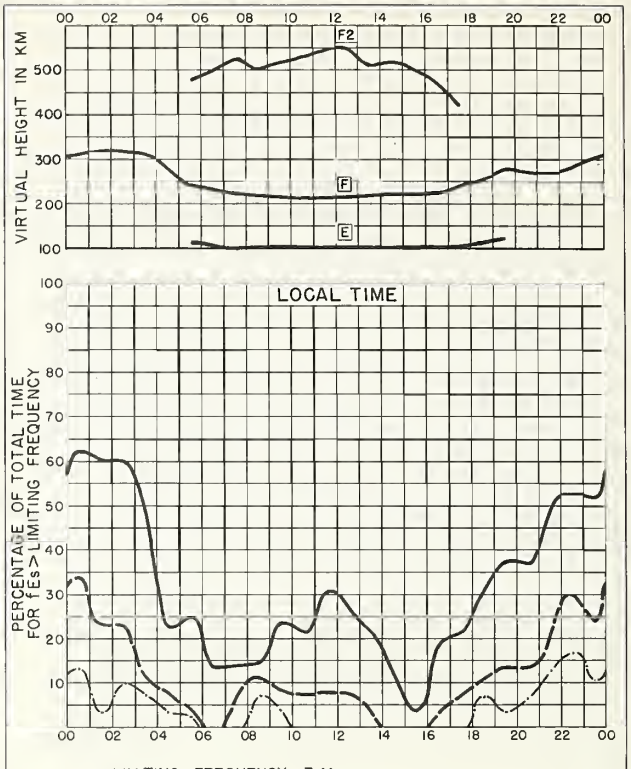


Fig. 62. WINNIPEG, CANADA JUNE 1958

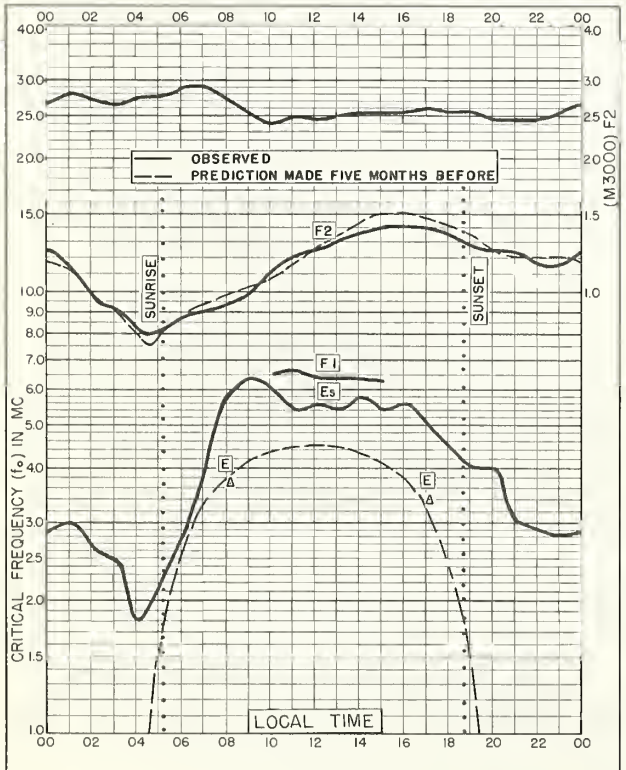


Fig. 63. FORMOSA, CHINA
25.0°N, 121.5°E JUNE 1958

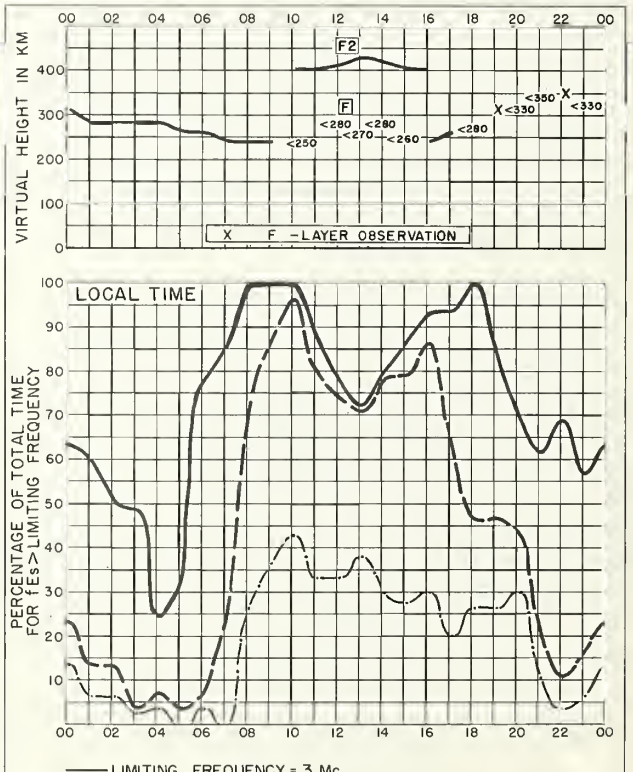


Fig. 64. FORMOSA, CHINA JUNE 1958

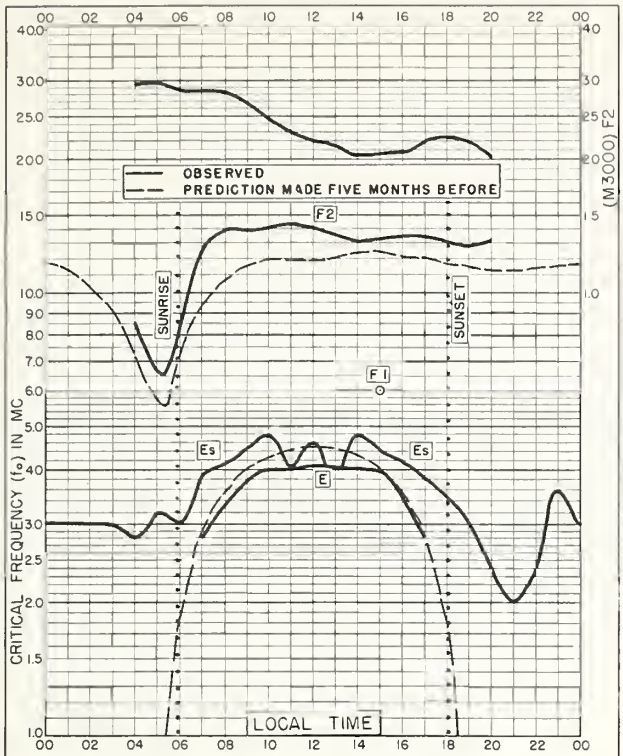


Fig. 65. BUNIA , BELGIAN CONGO
1.5°N , 30.2°E JUNE 1958

NBS 503

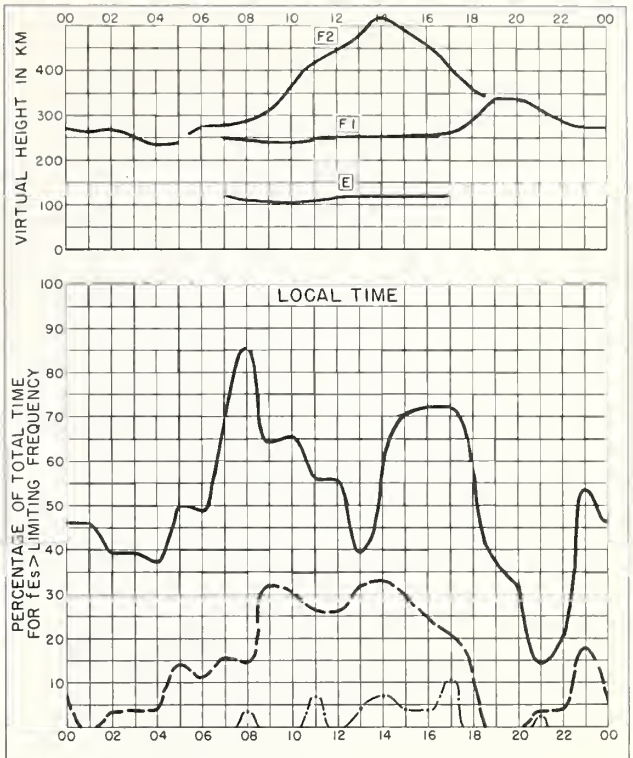


Fig. 66. BUNIA , BELGIAN CONGO JUNE 1958

NBS 490

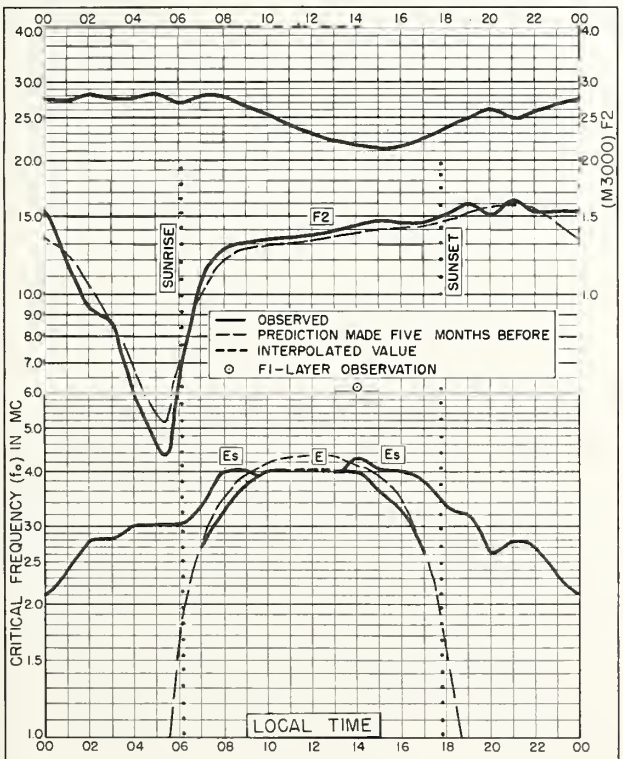


Fig. 67. LEOPOLDVILLE , BELGIAN CONGO
4.4°S , 15.2°E JUNE 1958

NBS 503

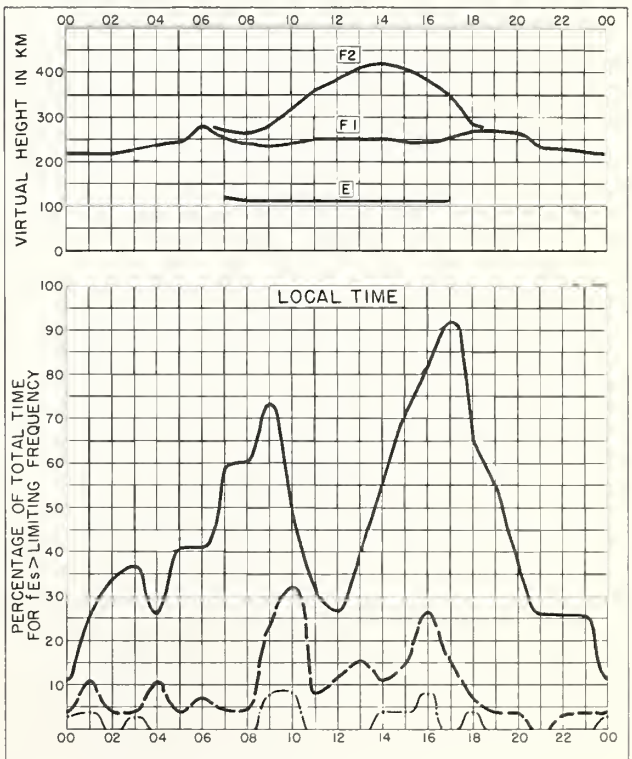


Fig. 68. LEOPOLDVILLE , BELGIAN CONGO JUNE 1958

NBS 490

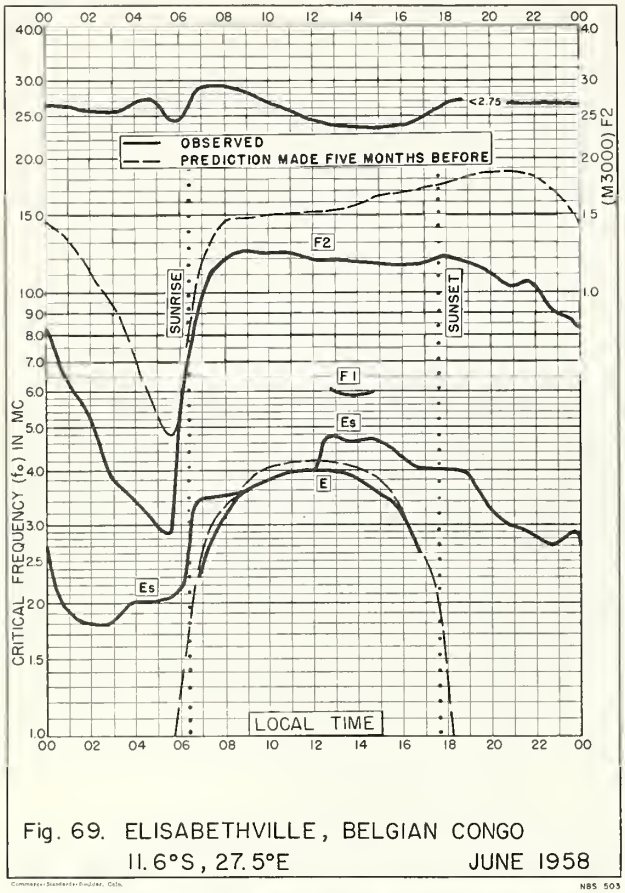


Fig. 69. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E JUNE 1958

NBS 503

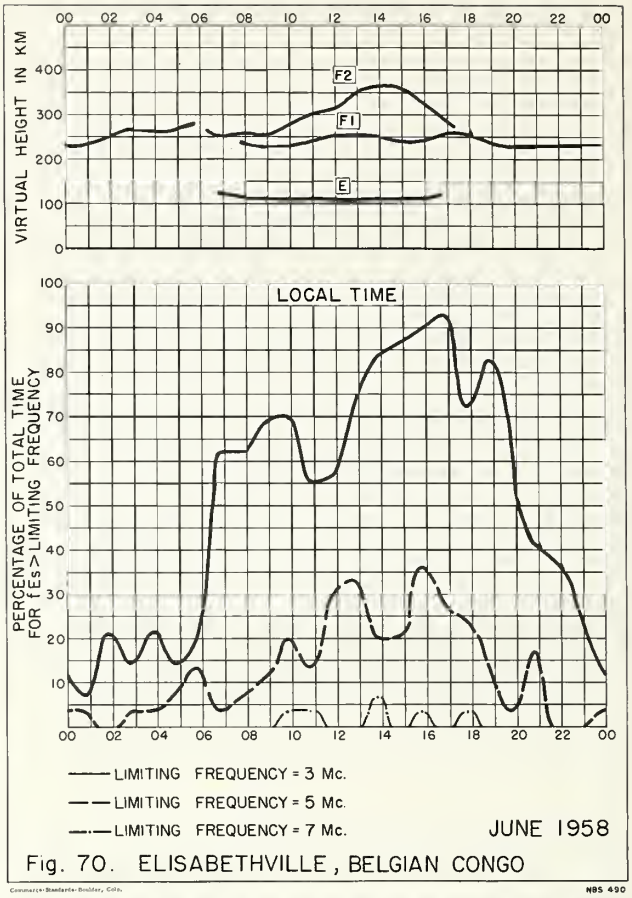


Fig. 70. ELISABETHVILLE, BELGIAN CONGO JUNE 1958

NBS 490

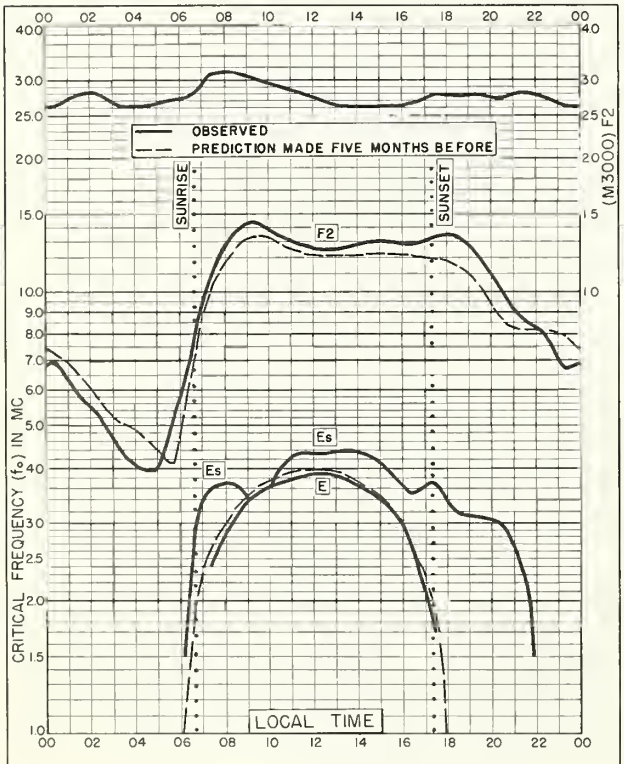


Fig. 71. RAROTONGA I.
21.2°S, 159.8°W JUNE 1958

NBS 503

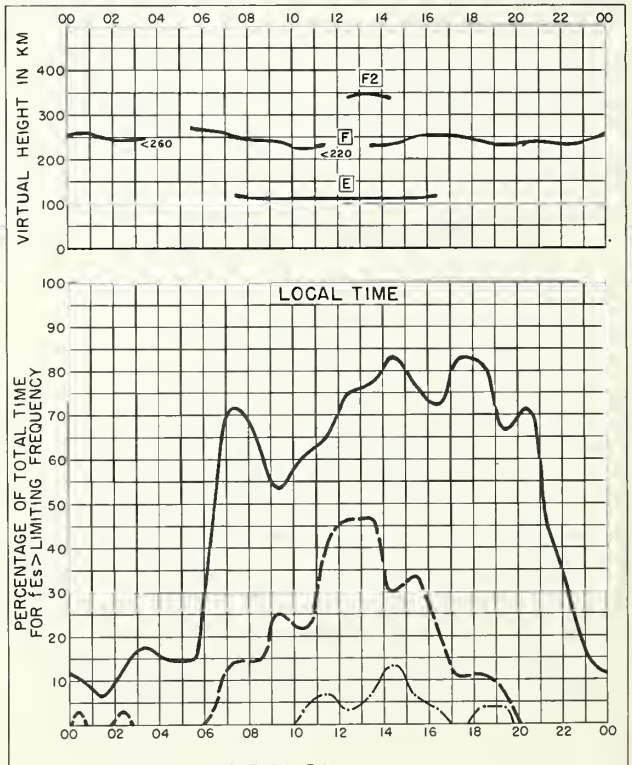


Fig. 72. RAROTONGA I. JUNE 1958

NBS 490

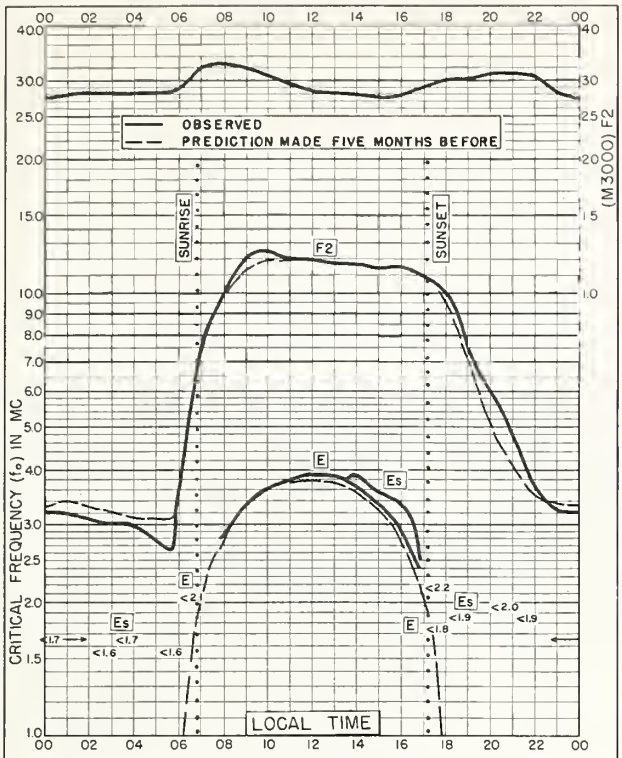


Fig. 73. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.0°E JUNE 1958

Commerce-Standards-Boulder, Colo.
NBS 503

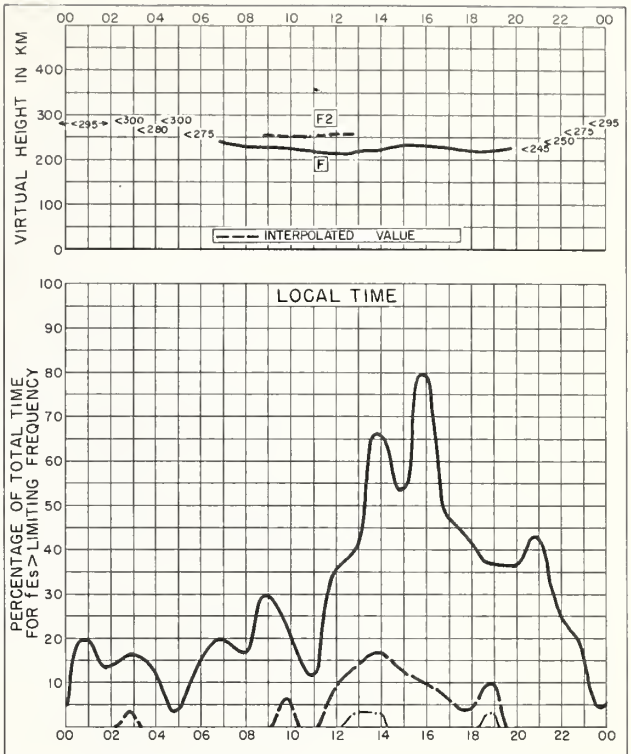


Fig. 74. JOHANNESBURG, UNION OF S. AFRICA JUNE 1958

Commerce-Standards-Boulder, Colo.
NBS 490

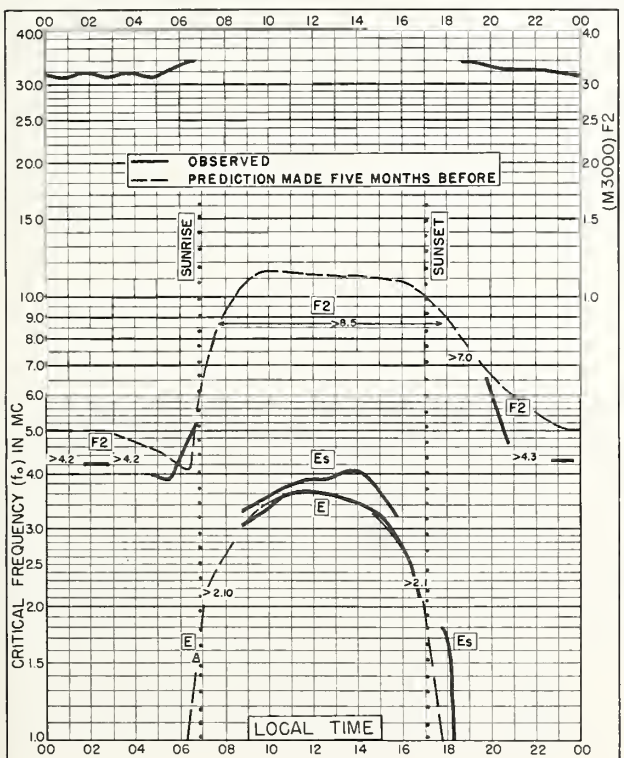


Fig. 75. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JUNE 1958

Commerce-Standards-Boulder, Colo.
NBS 503

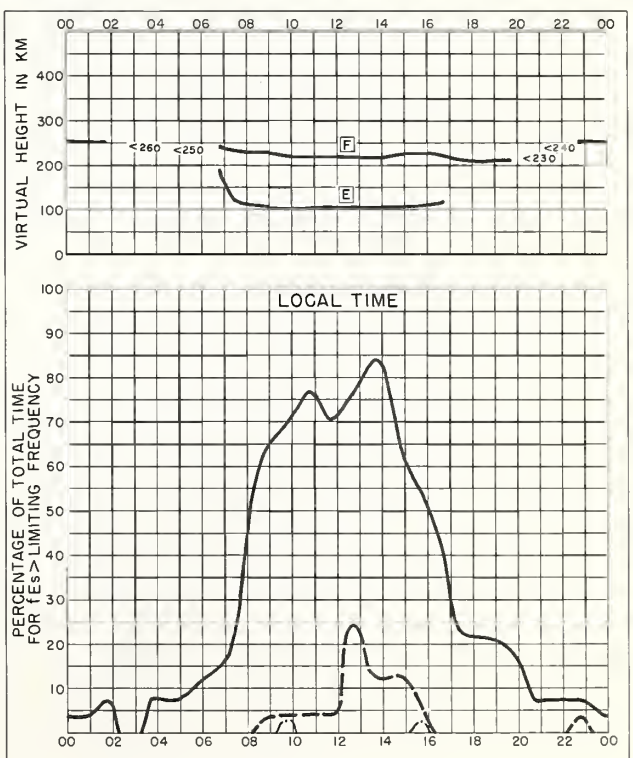


Fig. 76. WATHEROO, W. AUSTRALIA JUNE 1958

Commerce-Standards-Boulder, Colo.
NBS 490

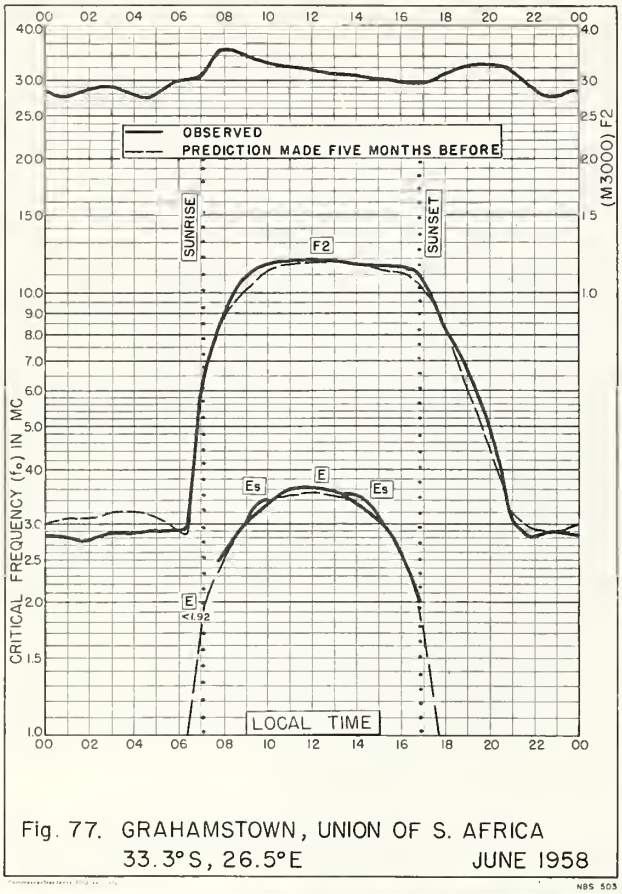
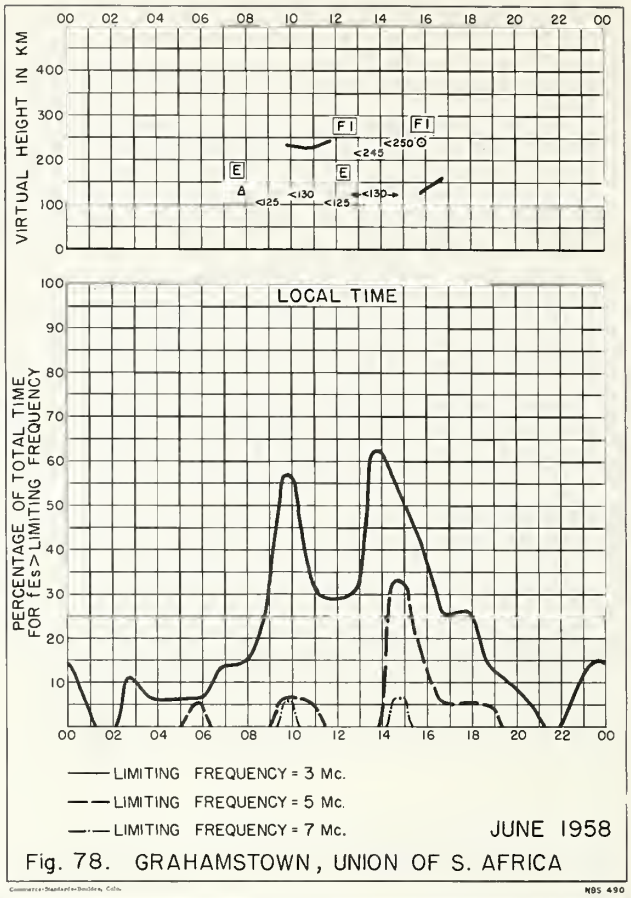


Fig. 77. GRAHAMSTOWN, UNION OF S. AFRICA
33.3°S, 26.5°E JUNE 1958

NBS 503



JUNE 1958

Fig. 78. GRAHAMSTOWN, UNION OF S. AFRICA

NBS 490

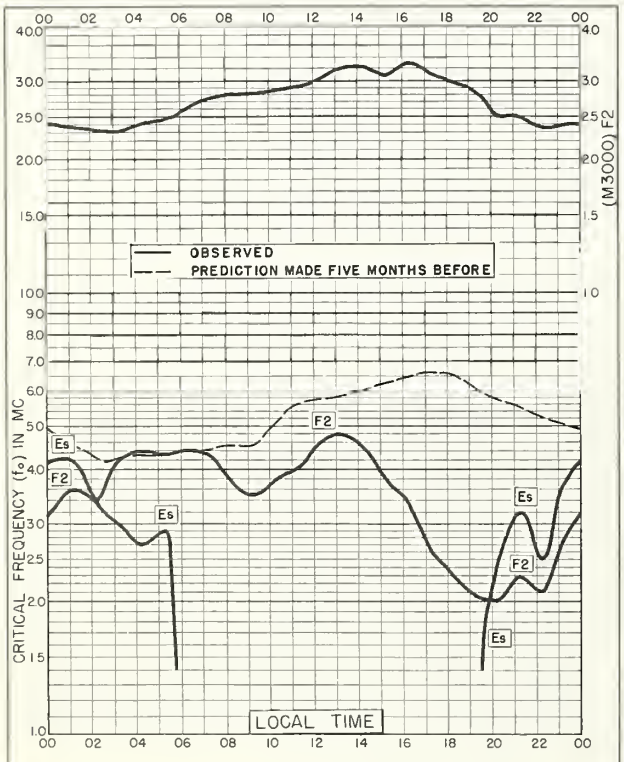


Fig. 79. ELLSWORTH
77.7°S, 41.1°W JUNE 1958

NBS 503

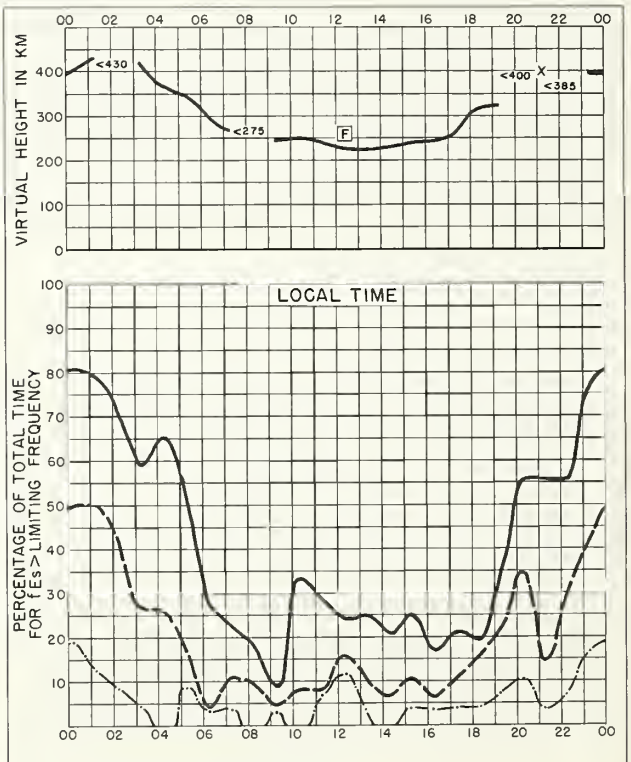


Fig. 80. ELLSWORTH JUNE 1958

NBS 490

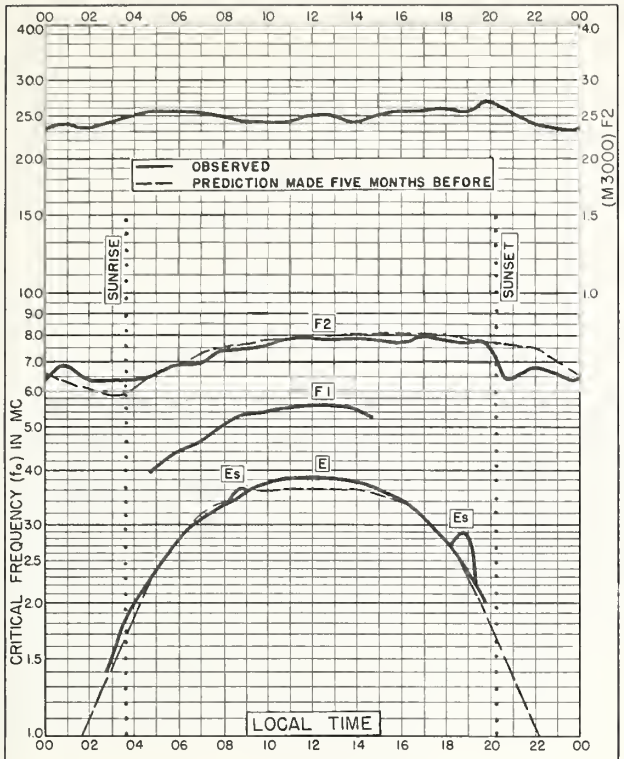


Fig. 81. OSLO, NORWAY
60.0°N, 11.1°E MAY 1958

Commerce-Standards-Boulder, Colo. NBS 503

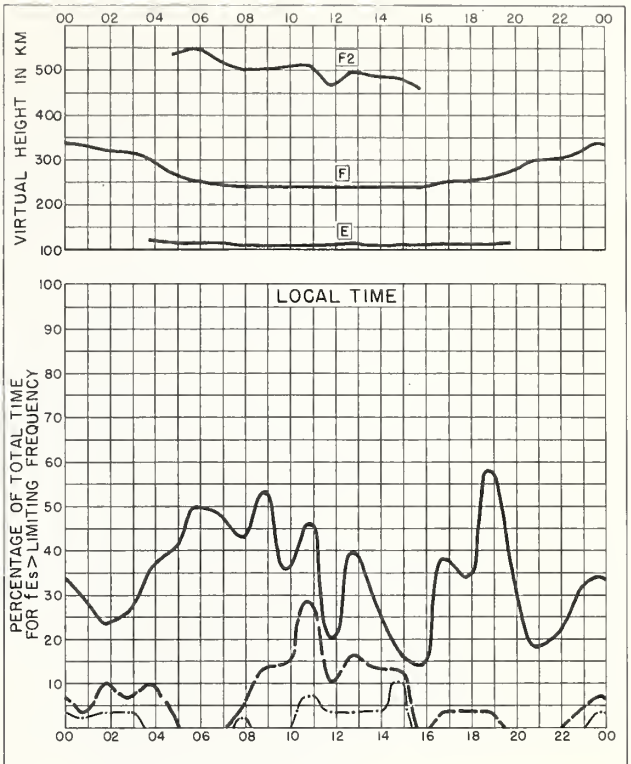


Fig. 82. OSLO, NORWAY MAY 1958

Commerce-Standards-Boulder, Colo. NBS 490

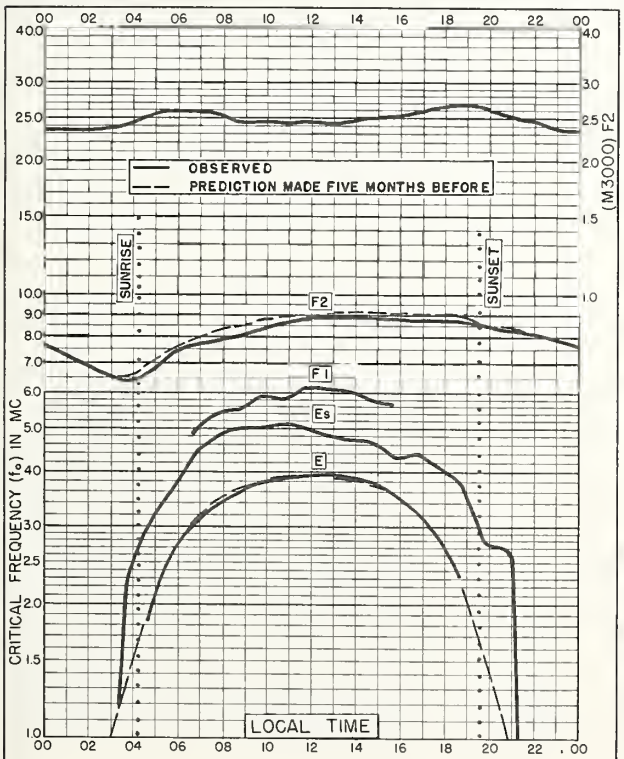


Fig. 83. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E MAY 1958

Commerce-Standards-Boulder, Colo. NBS 503

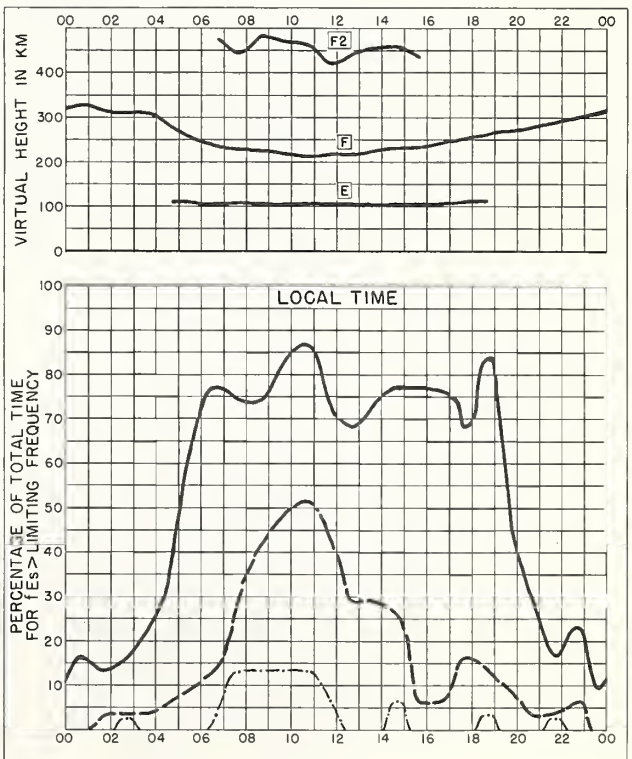


Fig. 84. LINDAU/HARZ, GERMANY MAY 1958

Commerce-Standards-Boulder, Colo. NBS 490

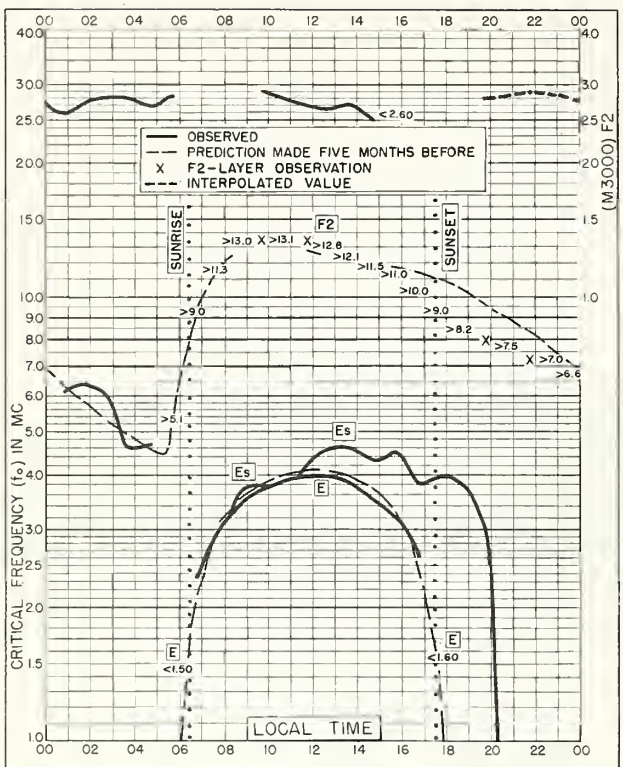


Fig. 85. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MAY 1958

NBS 503

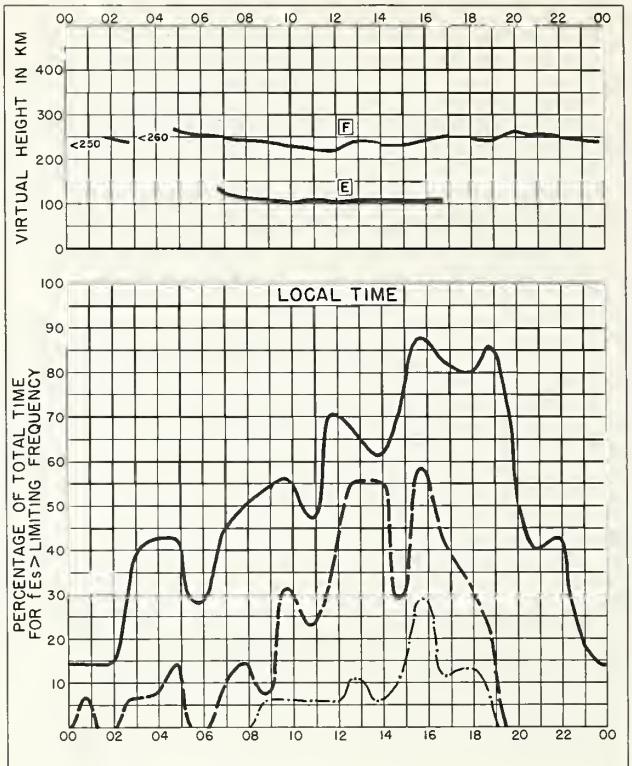


Fig. 86. TOWNSVILLE, AUSTRALIA MAY 1958

NBS 490

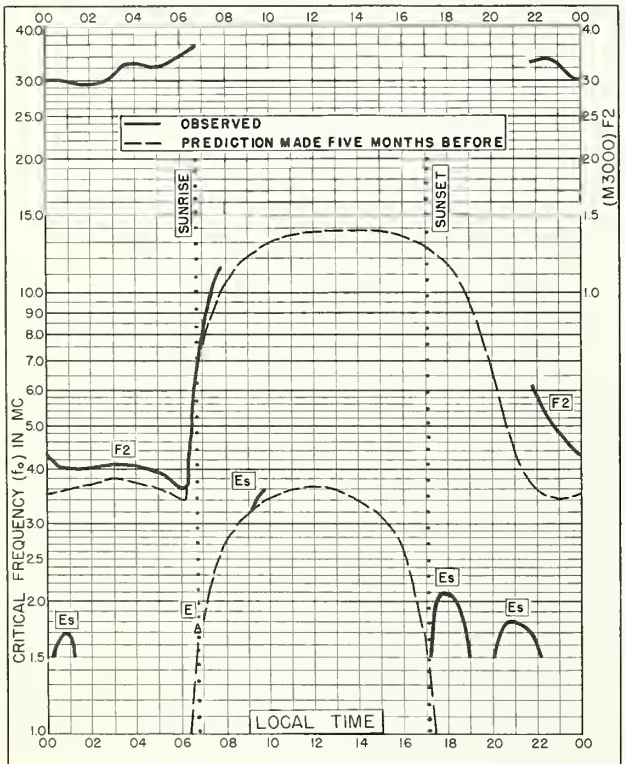


Fig. 87. GRAHAMSTOWN, UNION OF S. AFRICA
33.3°S, 26.5°E MAY 1958

NBS 503

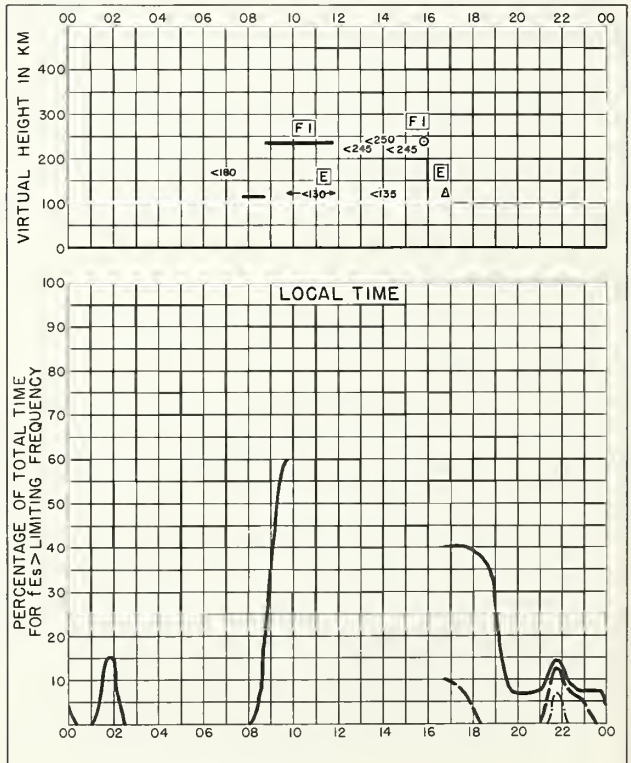


Fig. 88. GRAHAMSTOWN, UNION OF S. AFRICA MAY 1958

NBS 490

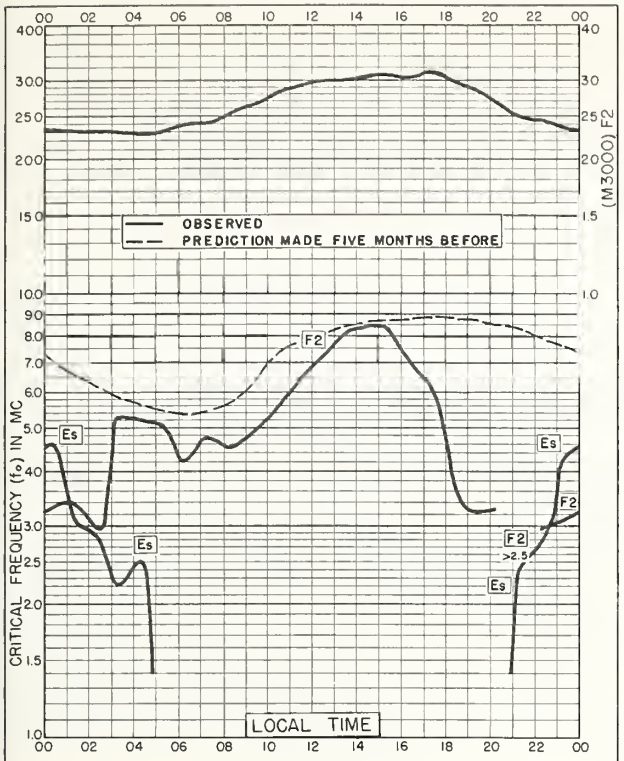


Fig. 89. ELLSWORTH
77.7°S, 41.1°W MAY 1958

Commerce-Standards-Boulder, Colo. NBS 503

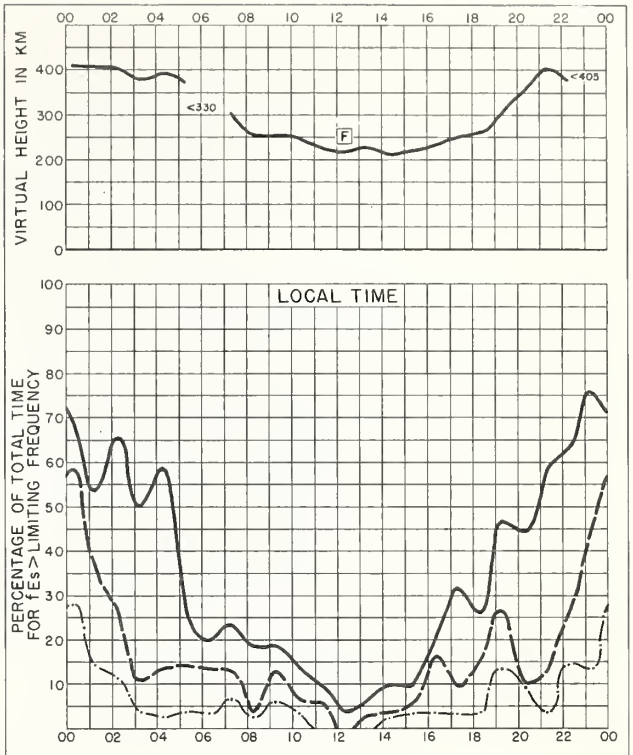


Fig. 90. ELLSWORTH MAY 1958

Commerce-Standards-Boulder, Colo. NBS 490

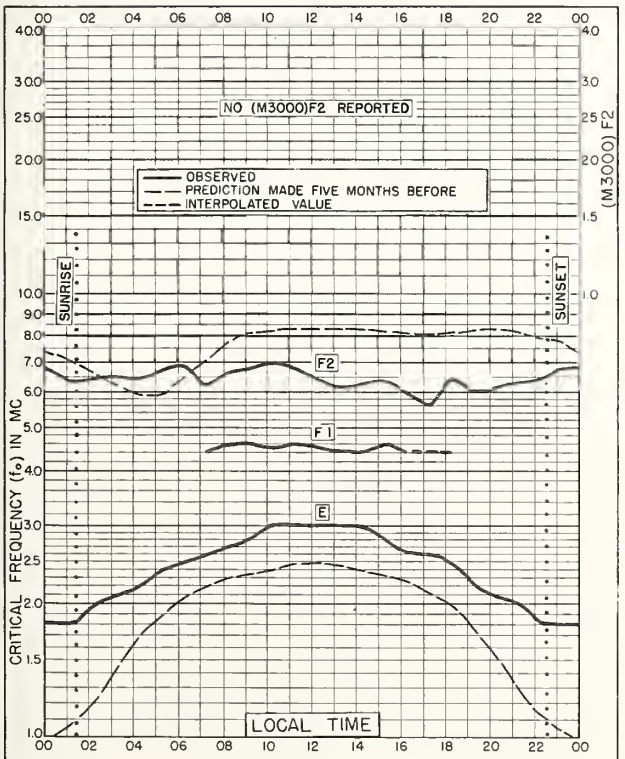


Fig. 91. EUREKA, CANADA
80.0°N, 85.9°W APRIL 1958

Commerce-Standards-Boulder, Colo. NBS 503

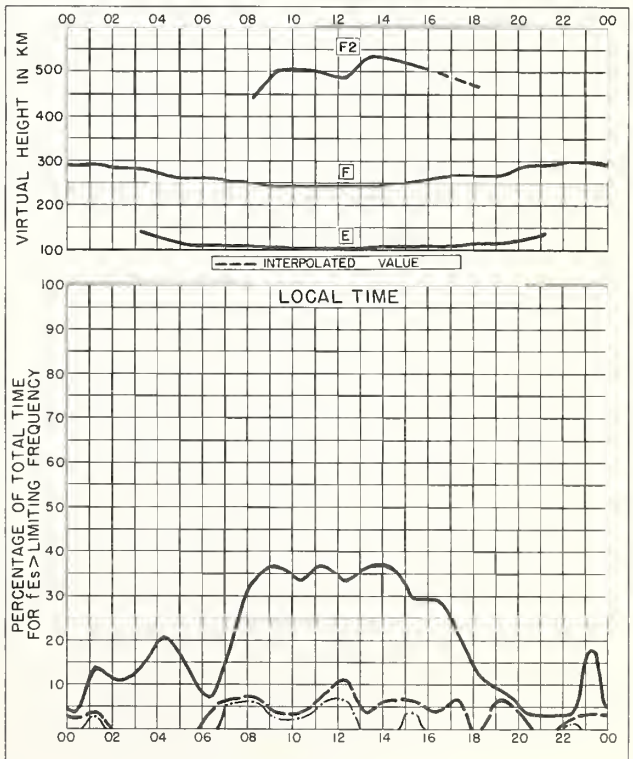


Fig. 92. EUREKA, CANADA APRIL 1958

Commerce-Standards-Boulder, Colo. NBS 490

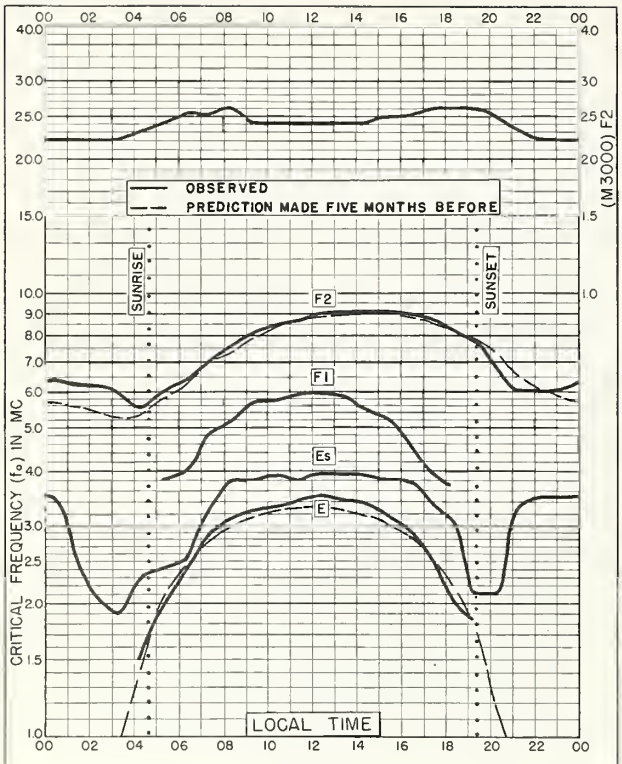


Fig. 93. LYCKSELE, SWEDEN
64.6°N, 18.8°E APRIL 1958

NBS 503

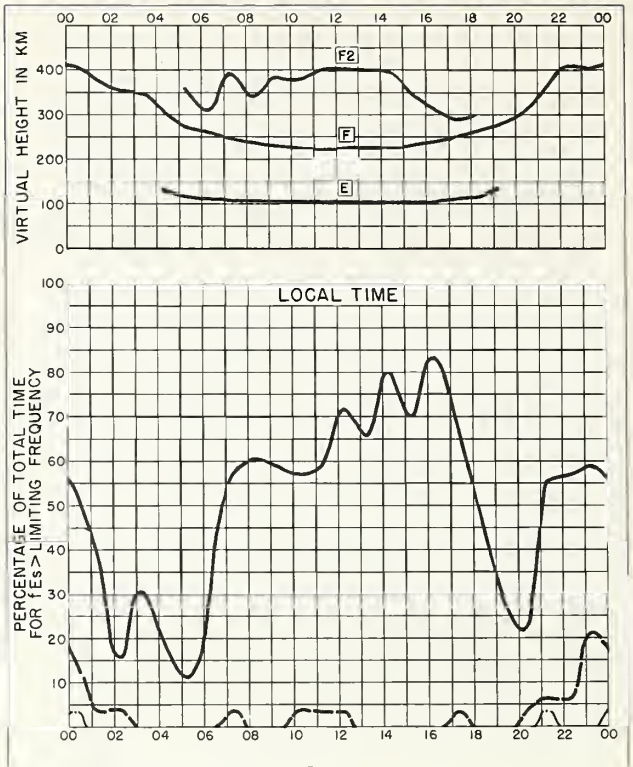


Fig. 94. LYCKSELE, SWEDEN APRIL 1958

NBS 490

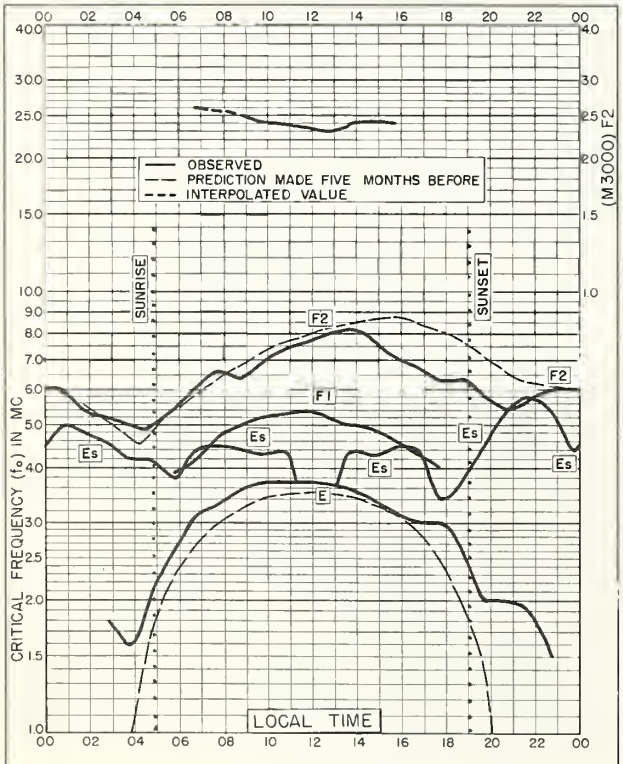


Fig. 95. CHURCHILL, CANADA
58.8°N, 94.2°W APRIL 1958

NBS 503

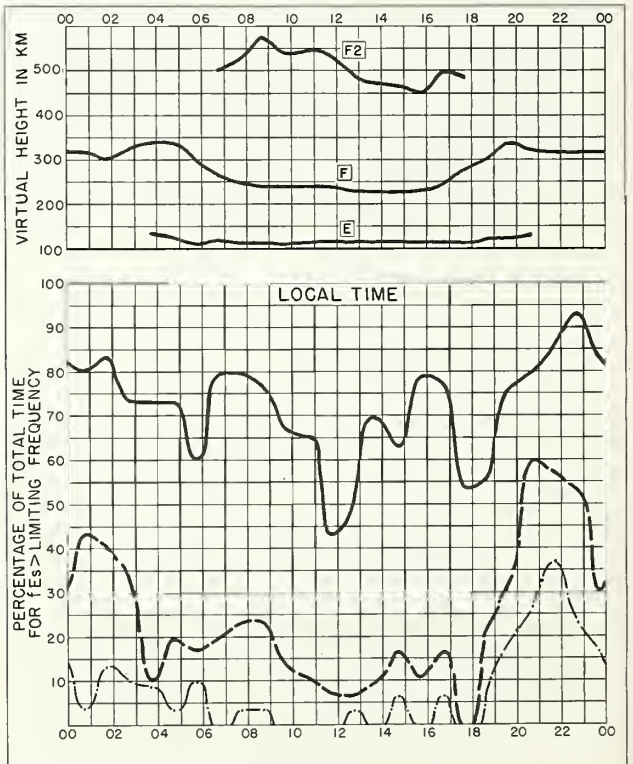


Fig. 96. CHURCHILL, CANADA APRIL 1958

NBS 490

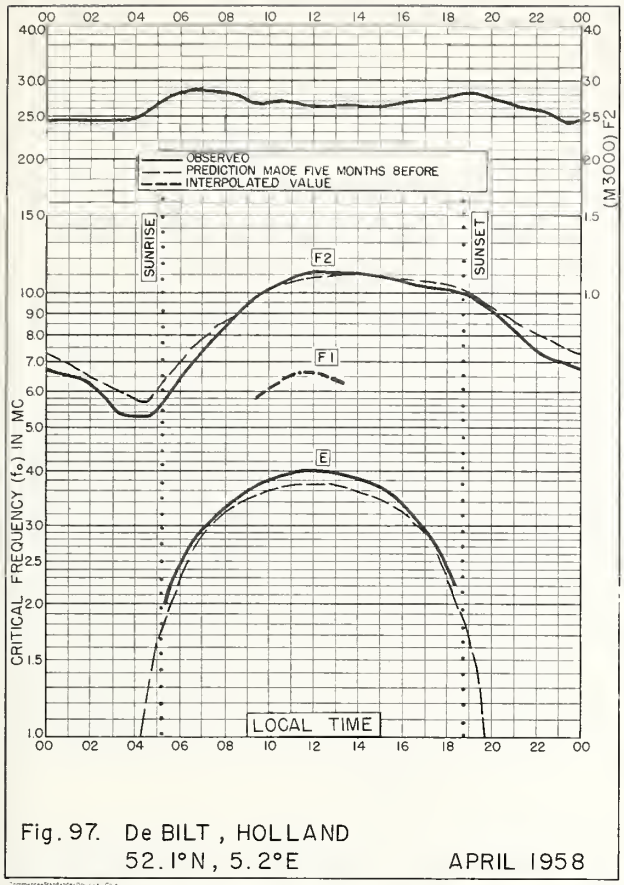


Fig. 97. De BILT, HOLLAND
52.1°N, 5.2°E APRIL 1958

NBS 503

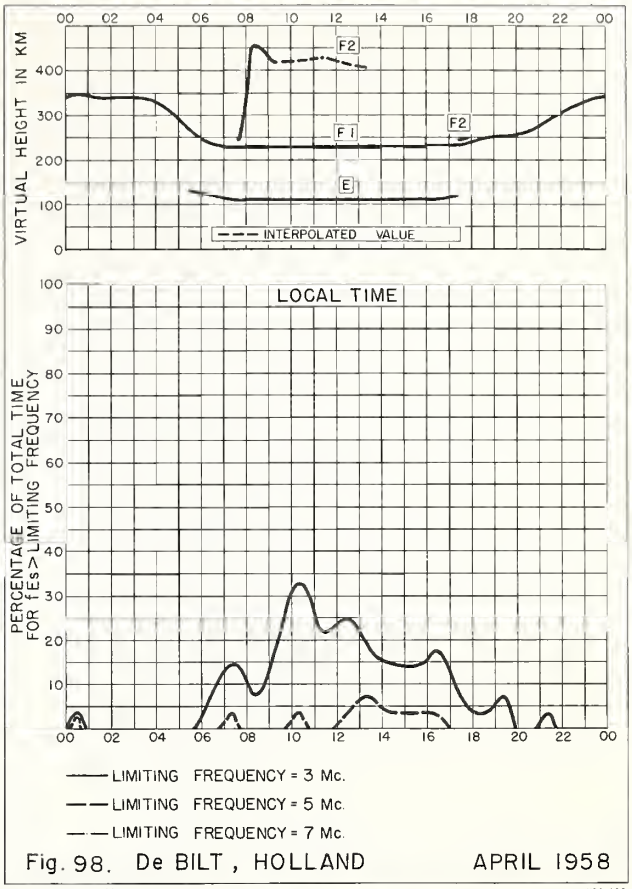


Fig. 98. De BILT, HOLLAND APRIL 1958

NBS 490

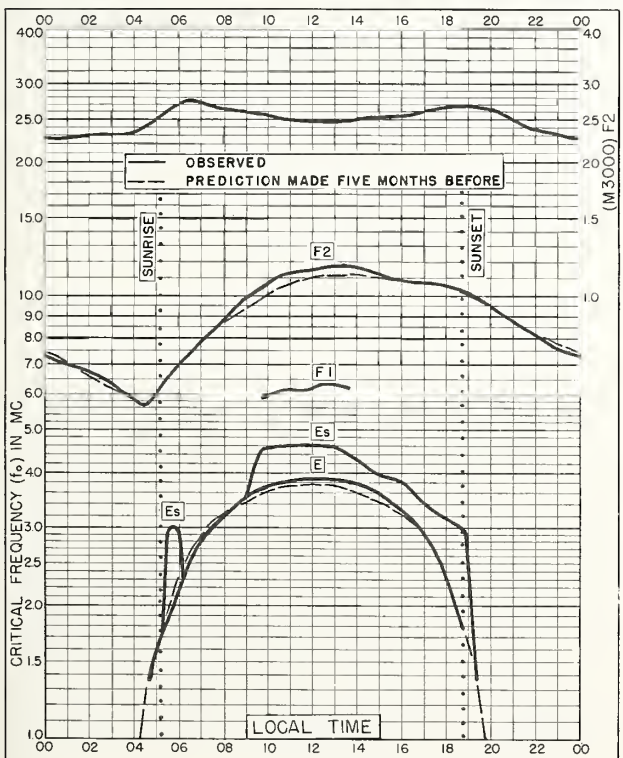


Fig. 99. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E APRIL 1958

NBS 503

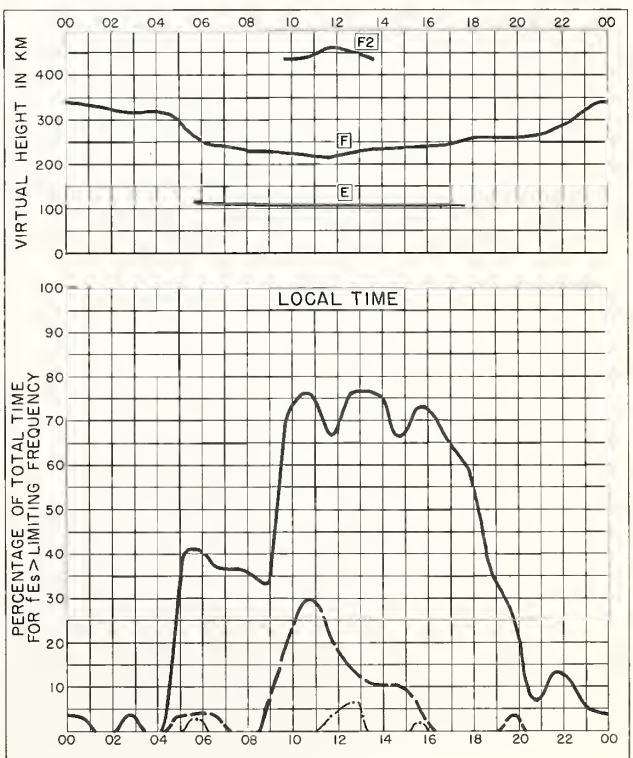


Fig. 100. LINDAU/HARZ, GERMANY APRIL 1958

NBS 490

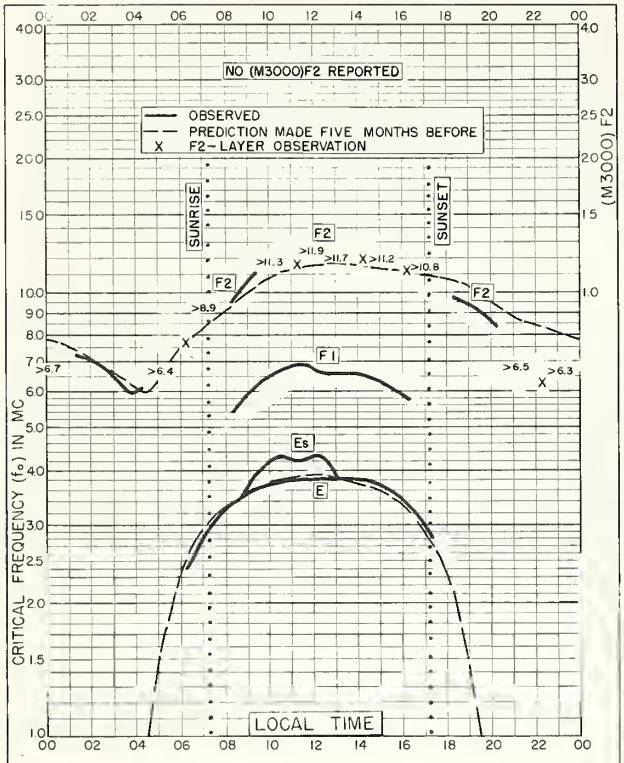


Fig. 101. BUDAPEST, HUNGARY
47.4°N, 19.2°E APRIL 1958

NBS 503

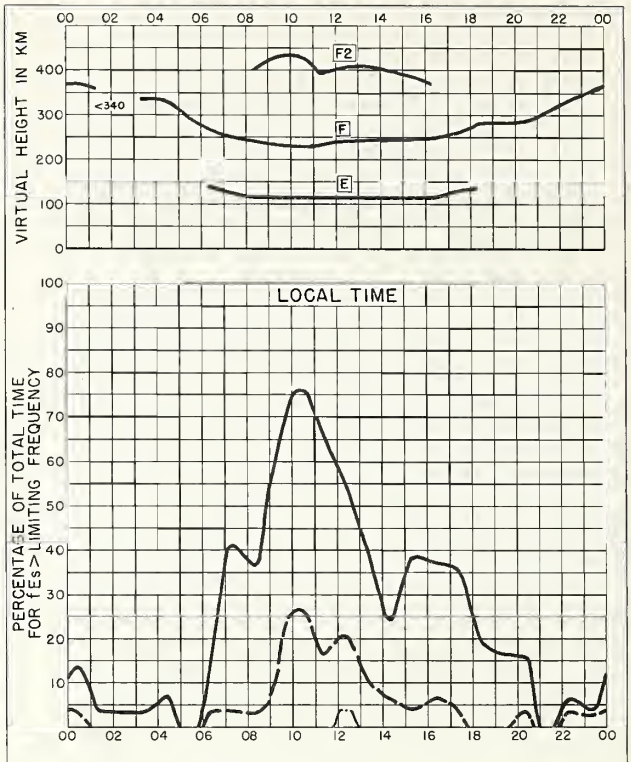


Fig. 102. BUDAPEST, HUNGARY APRIL 1958

NBS 490

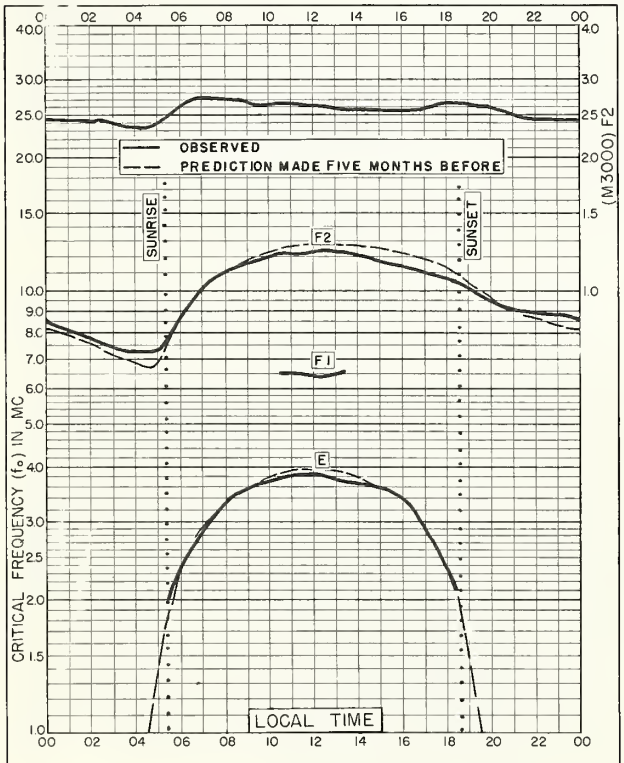


Fig. 103. WAKKANAI, JAPAN
45.4°N, 141.7°E APRIL 1958

NBS 503

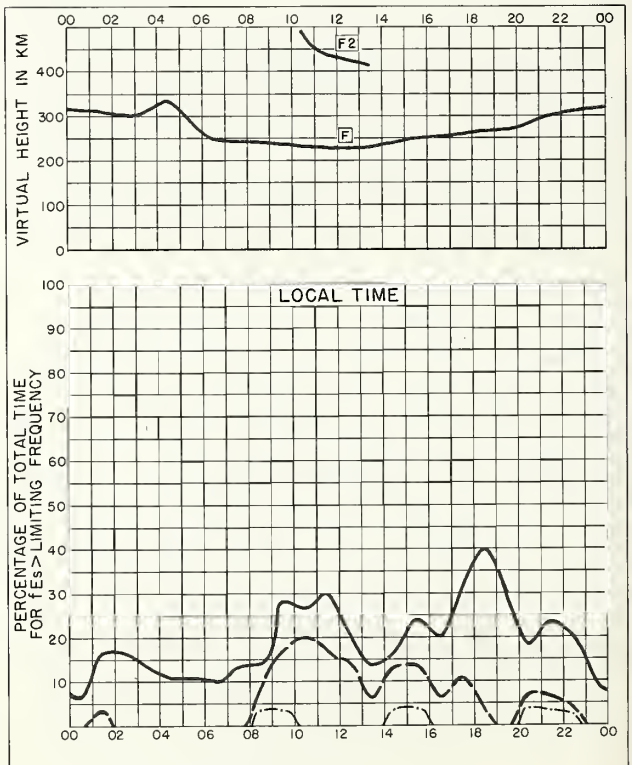


Fig. 104. WAKKANAI, JAPAN APRIL 1958

NBS 490

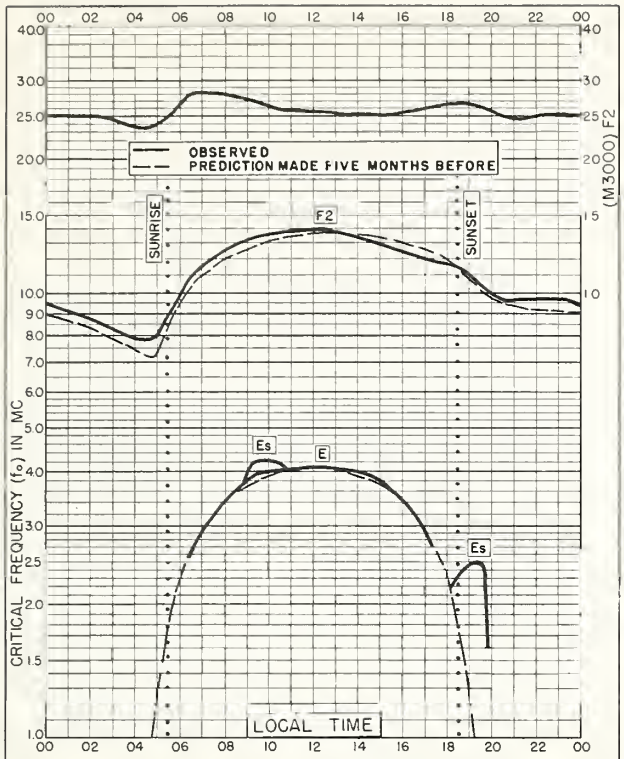


Fig. 105. AKITA, JAPAN
39.7°N, 140.1°E APRIL 1958

NBS 503

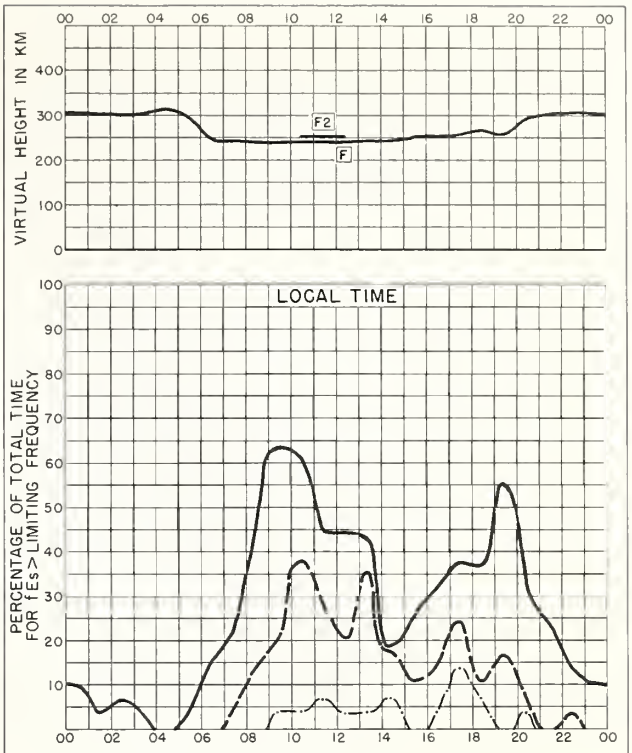


Fig. 106. AKITA, JAPAN APRIL 1958

NBS 490

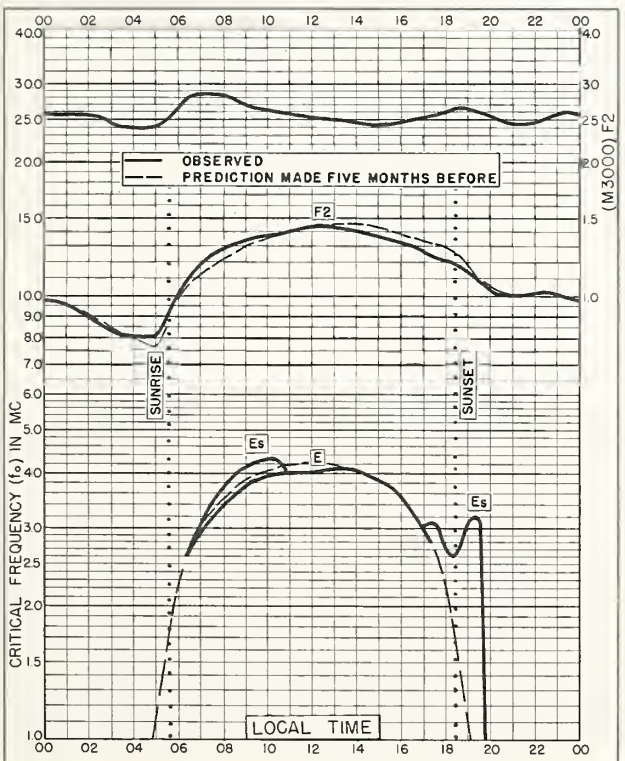


Fig. 107. TOKYO, JAPAN
35.7°N, 139.5°E APRIL 1958

NBS 503

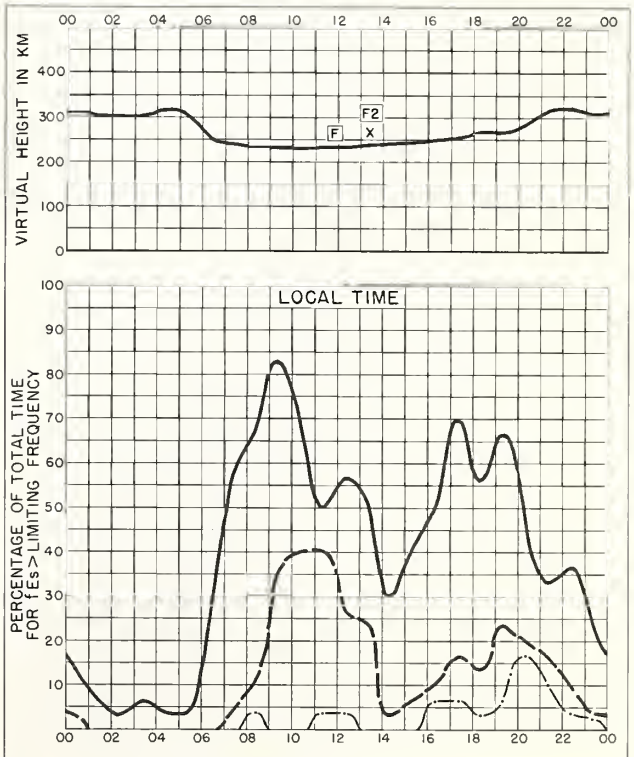


Fig. 108. TOKYO, JAPAN APRIL 1958

NBS 490

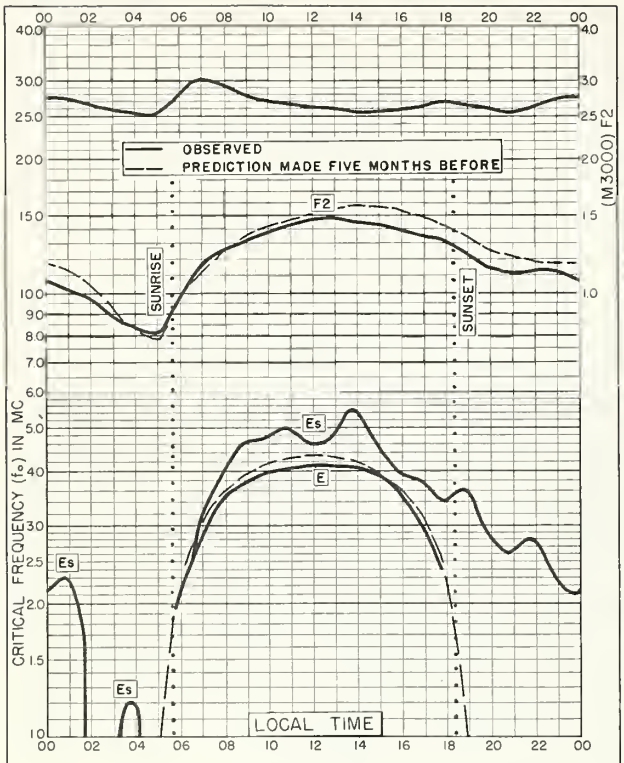


Fig. 109. YAMAGAWA, JAPAN
31.2°N, 130.6°E APRIL 1958

NBS 503

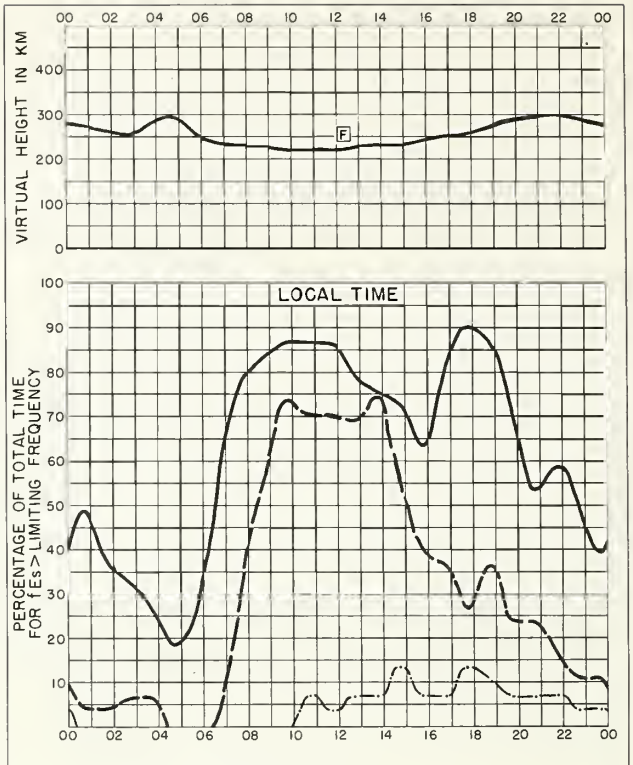


Fig. 110. YAMAGAWA, JAPAN APRIL 1958

NBS 490

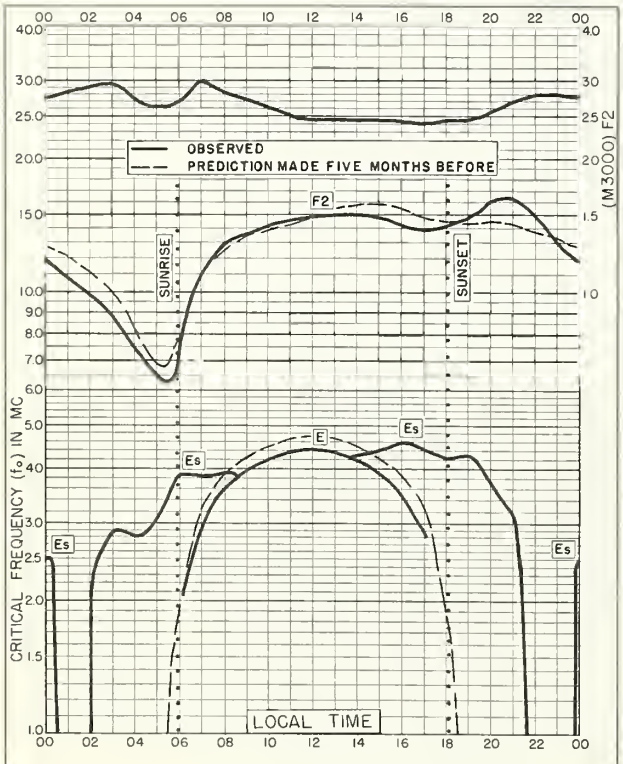


Fig. 111. BOGOTA, COLOMBIA
4.5°N, 74.2°W APRIL 1958

NBS 503

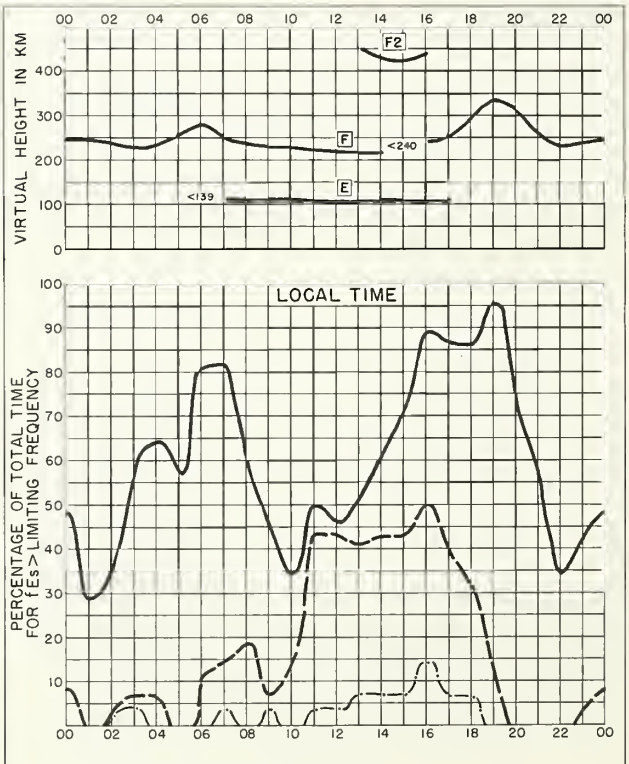


Fig. 112. BOGOTA, COLOMBIA APRIL 1958

NBS 490

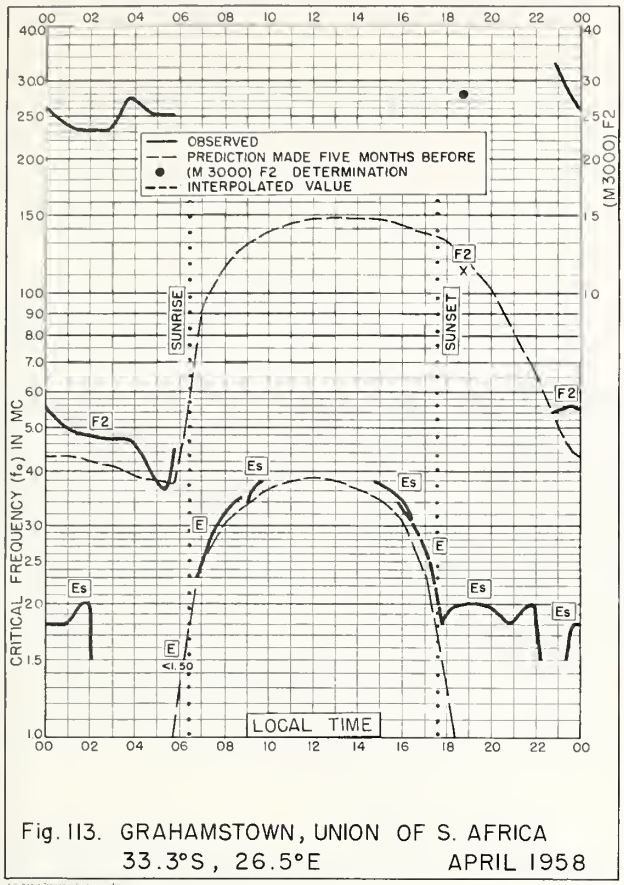
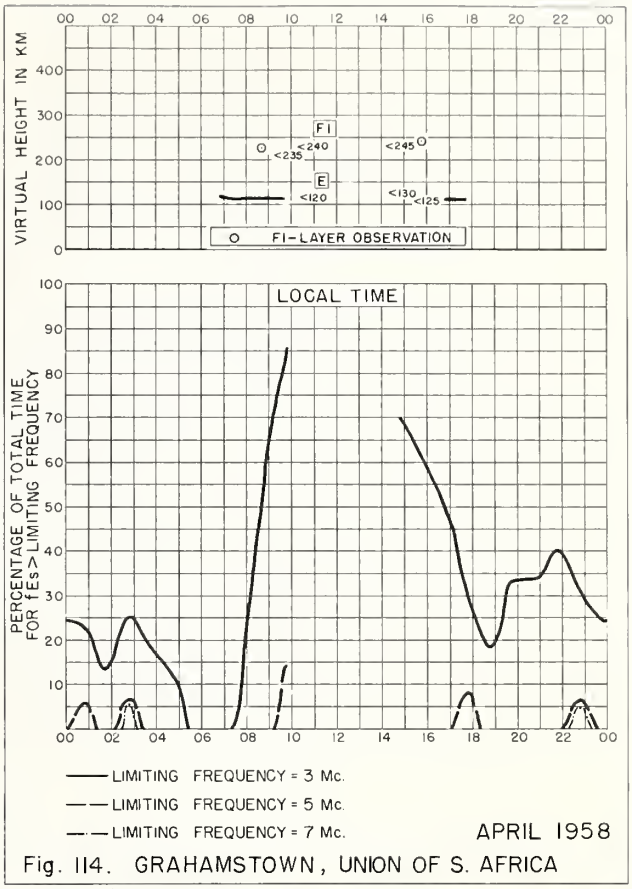


Fig. 113. GRAHAMSTOWN, UNION OF S. AFRICA
33.3°S, 26.5°E APRIL 1958

NBS 503



APRIL 1958

Fig. 114. GRAHAMSTOWN, UNION OF S. AFRICA

NBS 490

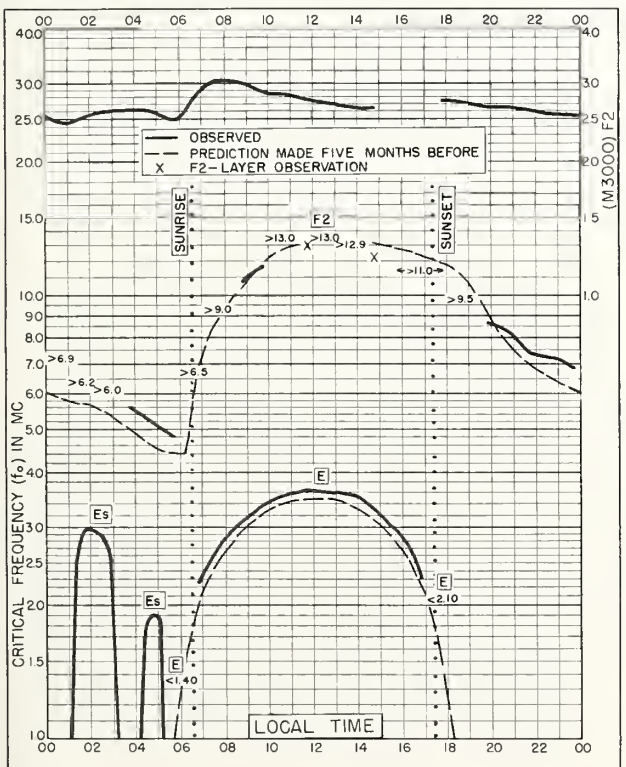


Fig. 115. HOBART, TASMANIA
42.9°S, 147.2°E APRIL 1958

NBS 503

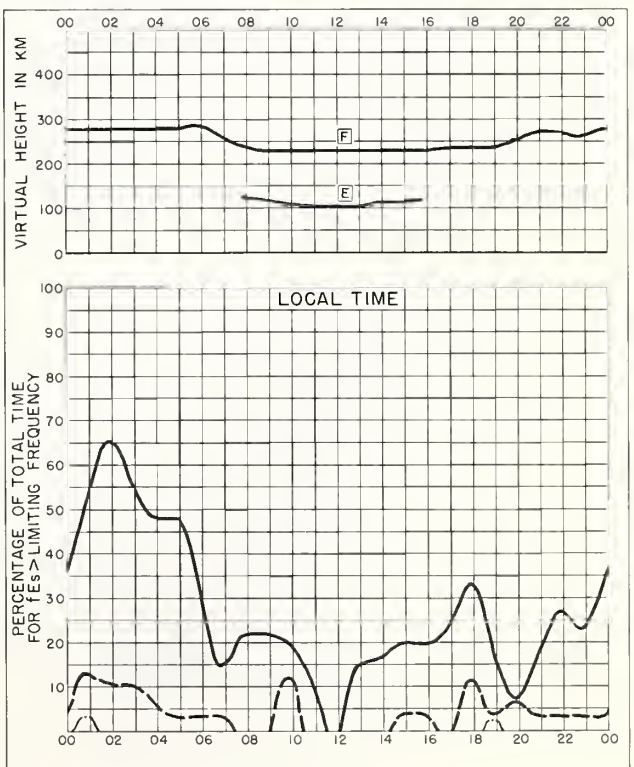


Fig. 116. HOBART, TASMANIA APRIL 1958

NBS 490

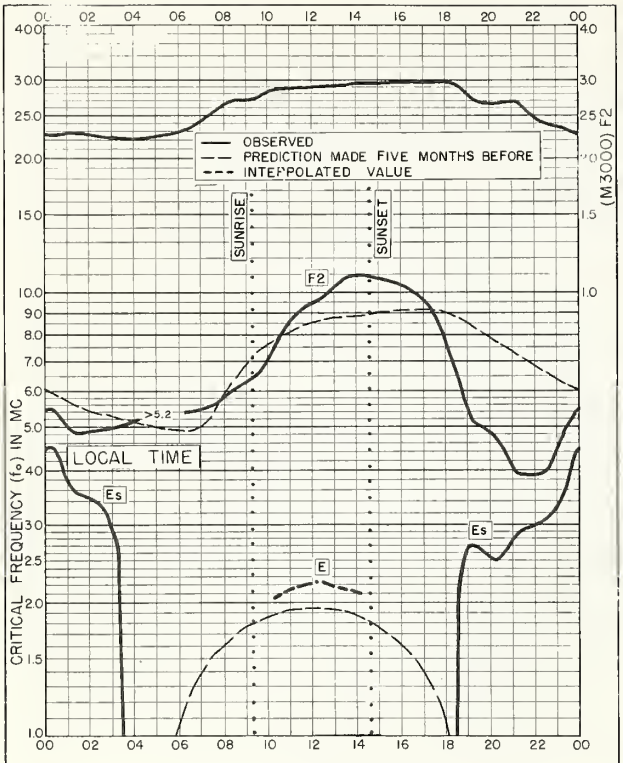


Fig. 117. ELLSWORTH
77.7°S, 41.1°W APRIL 1958

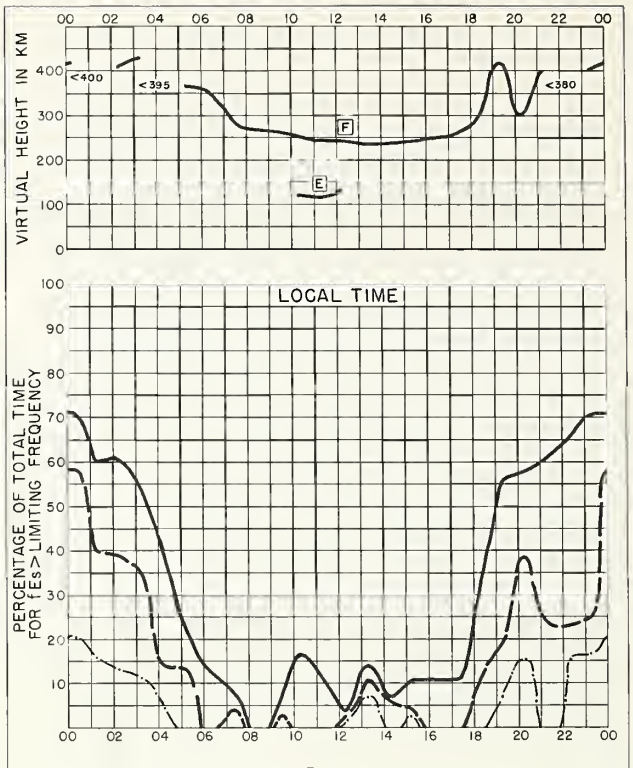


Fig. 118. ELLSWORTH APRIL 1958

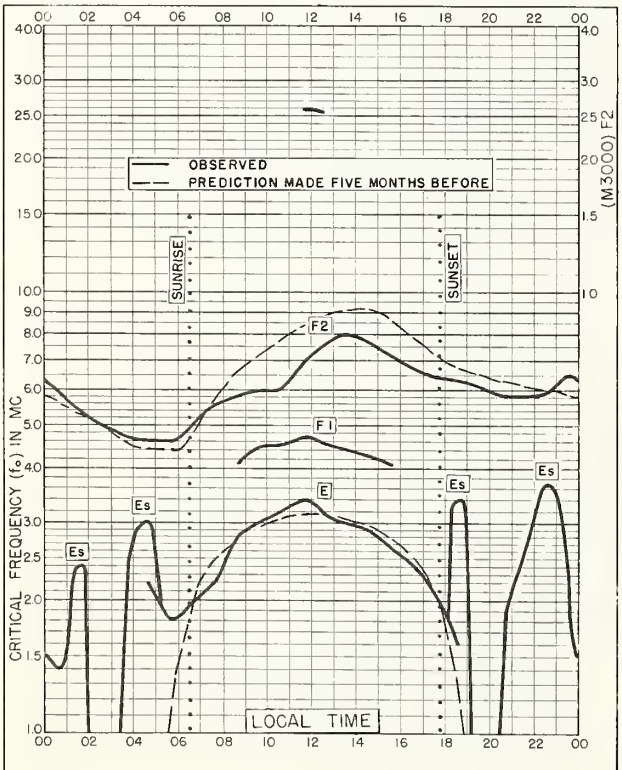


Fig. 119. BAKER LAKE, CANADA
64.3°N, 96.0°W MARCH 1958

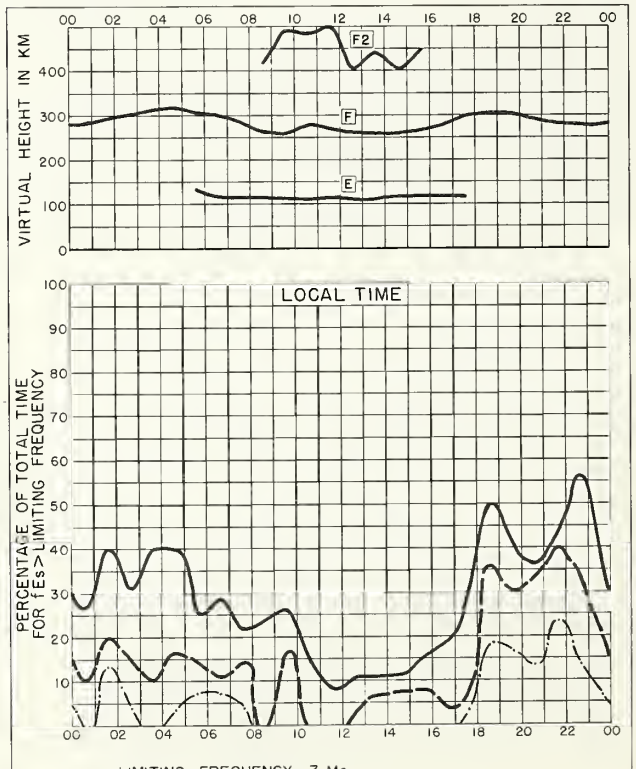


Fig. 120. BAKER LAKE, CANADA MARCH 1958

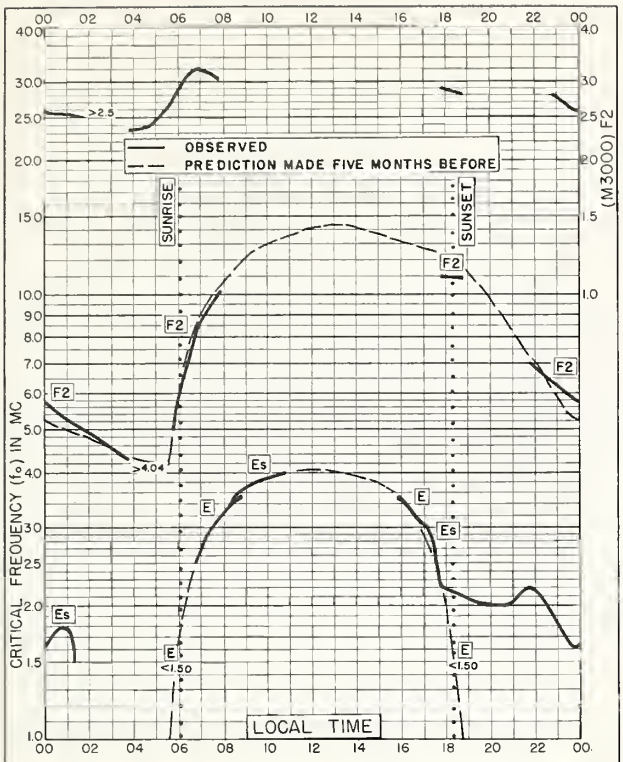
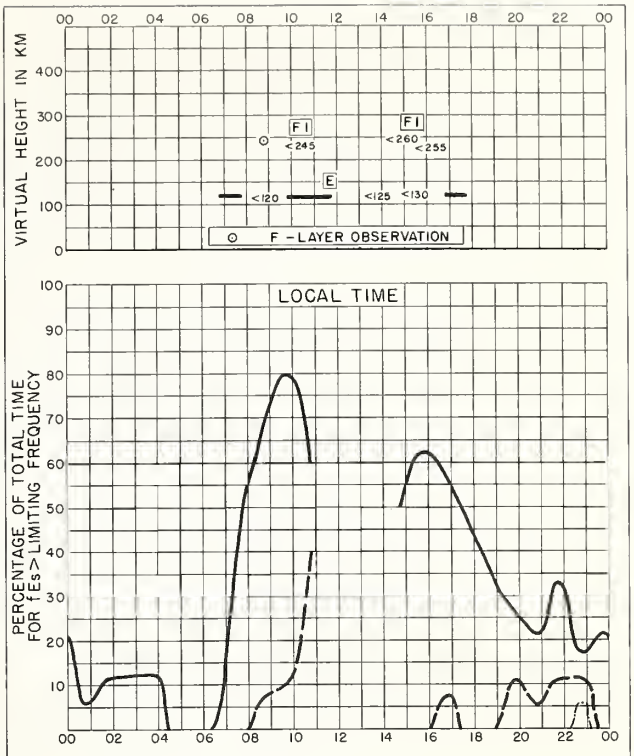


Fig. 121. GRAHAMSTOWN, UNION OF S. AFRICA
33.3°S, 26.5°E MARCH 1958

Commerce-Standards-Boulder, Colo. NBS 503



MARCH 1958

Fig. 122. GRAHAMSTOWN, UNION OF S. AFRICA

Commerce-Standards-Boulder, Colo. NBS 490

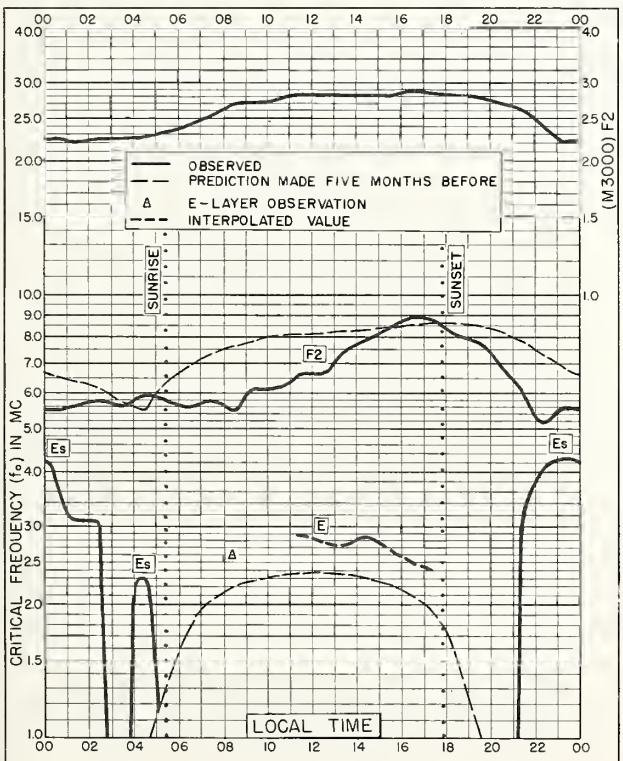


Fig. 123. ELLSWORTH
77.7°S, 41.1°W MARCH 1958

Commerce-Standards-Boulder, Colo. NBS 503

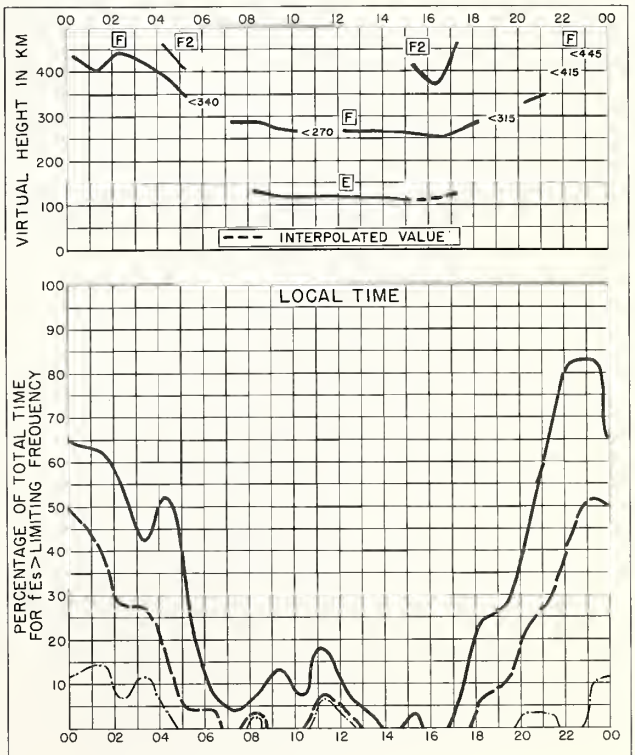


Fig. 124. ELLSWORTH MARCH 1958

Commerce-Standards-Boulder, Colo. NBS 490

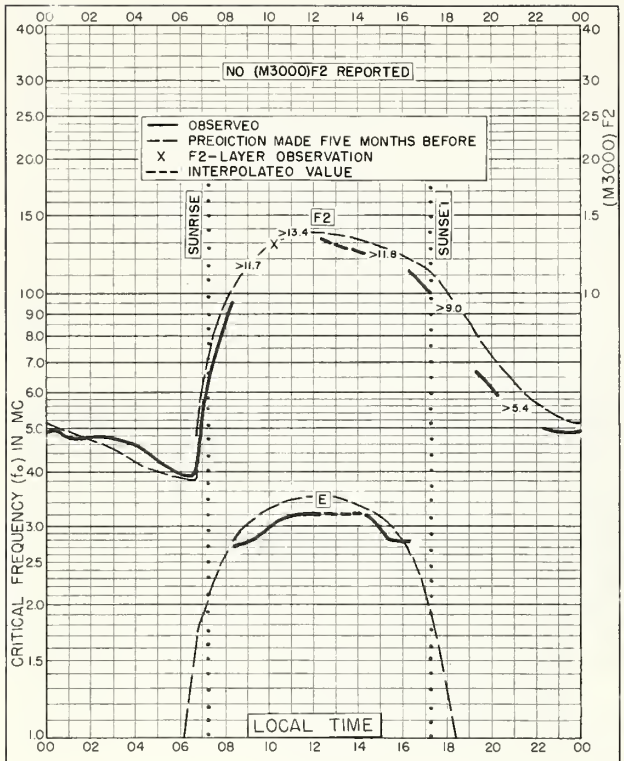


Fig. 125. BUDAPEST, HUNGARY
47.4°N, 19.2°E FEBRUARY 1958

NBS 503

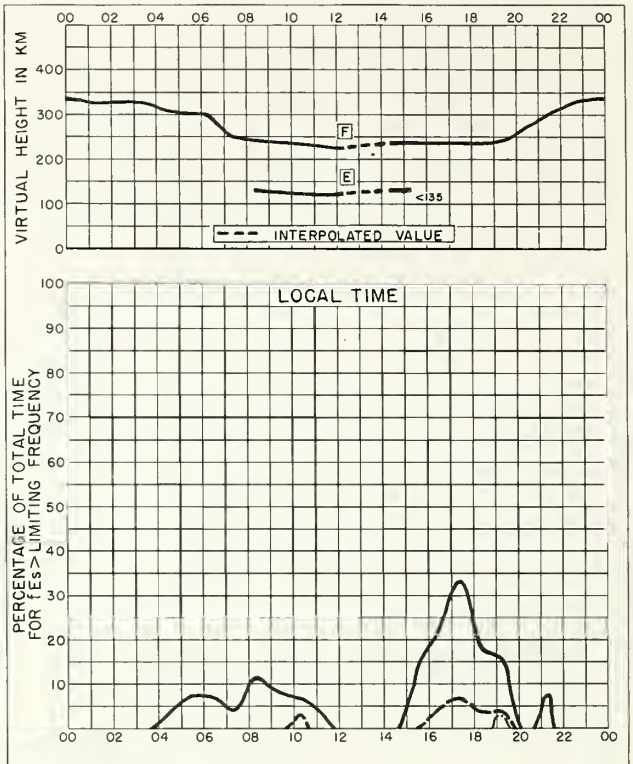


Fig. 126. BUDAPEST, HUNGARY FEBRUARY 1958

NBS 490

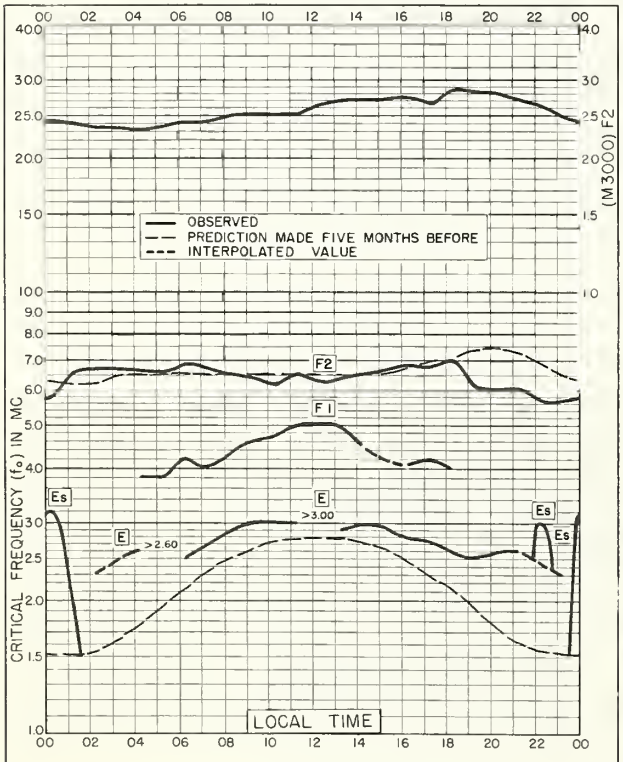


Fig. 127. ELLSWORTH
77.7°S, 41.1°W FEBRUARY 1958

NBS 503

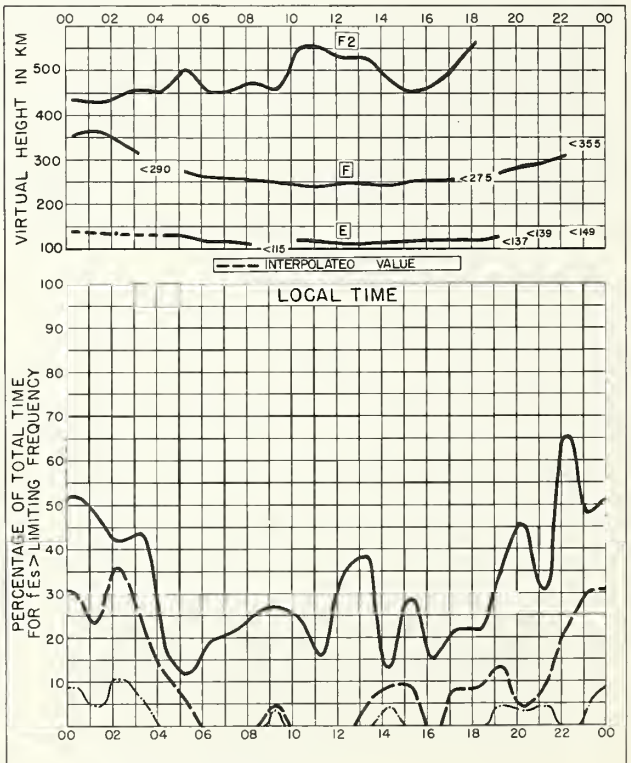


Fig. 128. ELLSWORTH FEBRUARY 1958

NBS 490

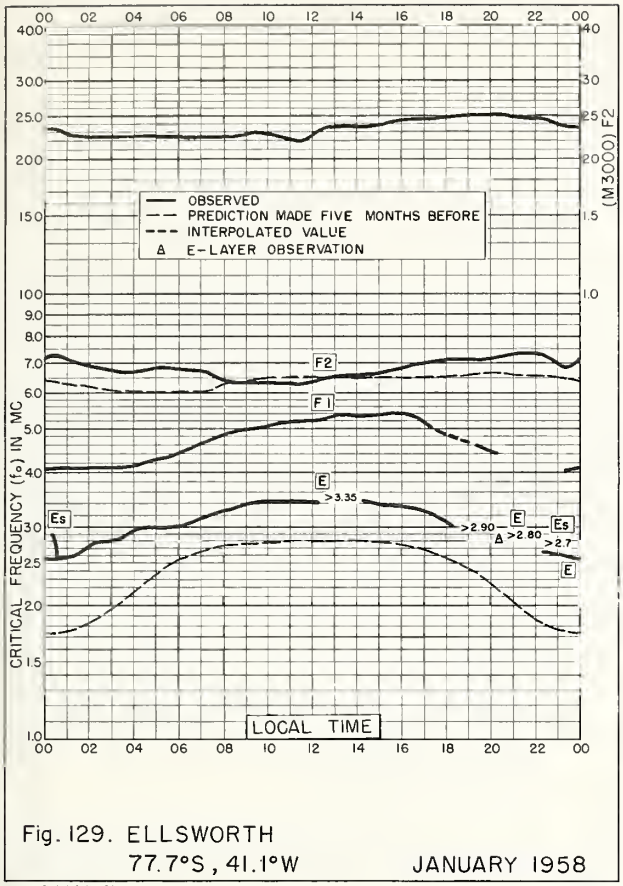


Fig. 129. ELLSWORTH
77.7°S, 41.1°W JANUARY 1958

Commerce-Standards-Boulder, Colo. NBS 503

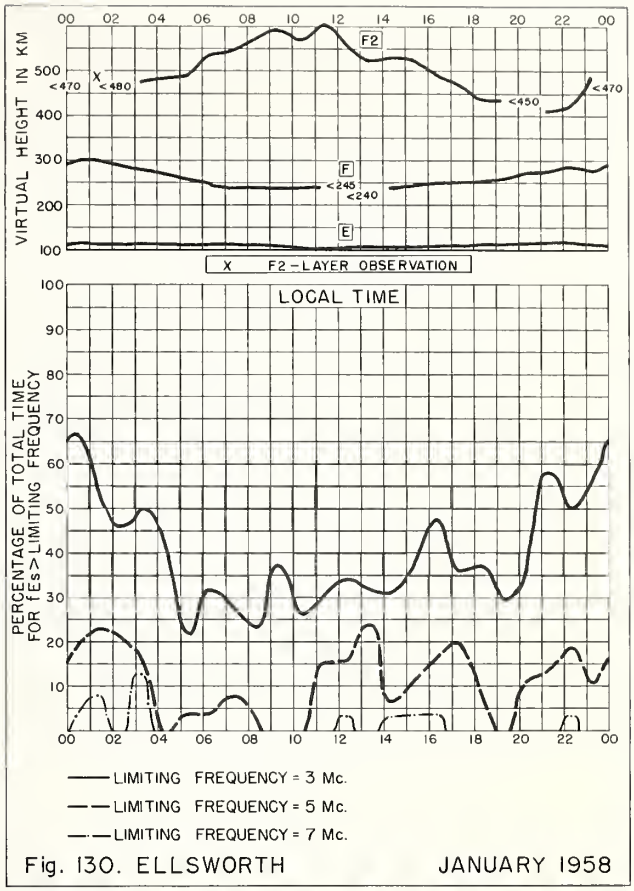


Fig. 130. ELLSWORTH JANUARY 1958

Commerce-Standards-Boulder, Colo. NBS 490

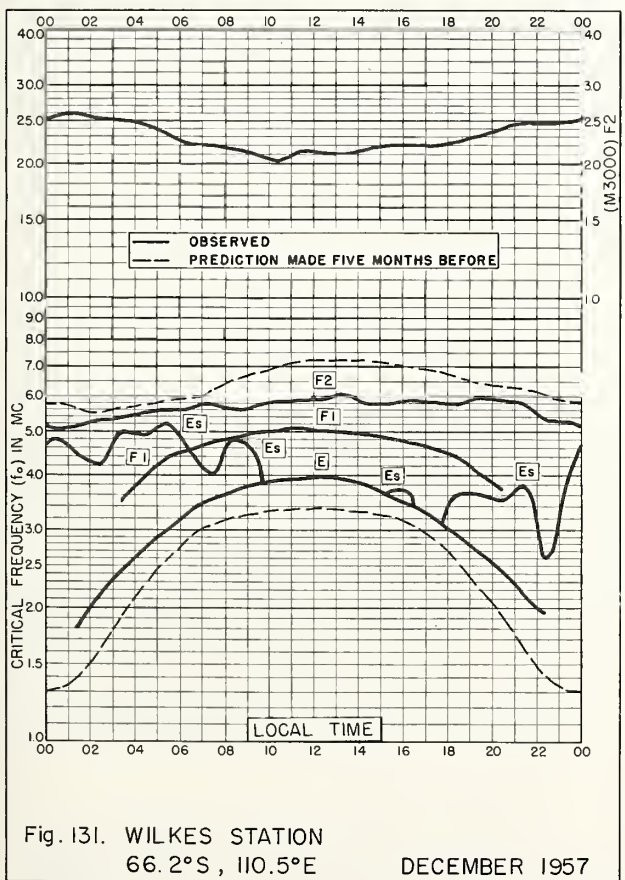


Fig. 131. WILKES STATION
66.2°S, 110.5°E DECEMBER 1957

Commerce-Standards-Boulder, Colo. NBS 503

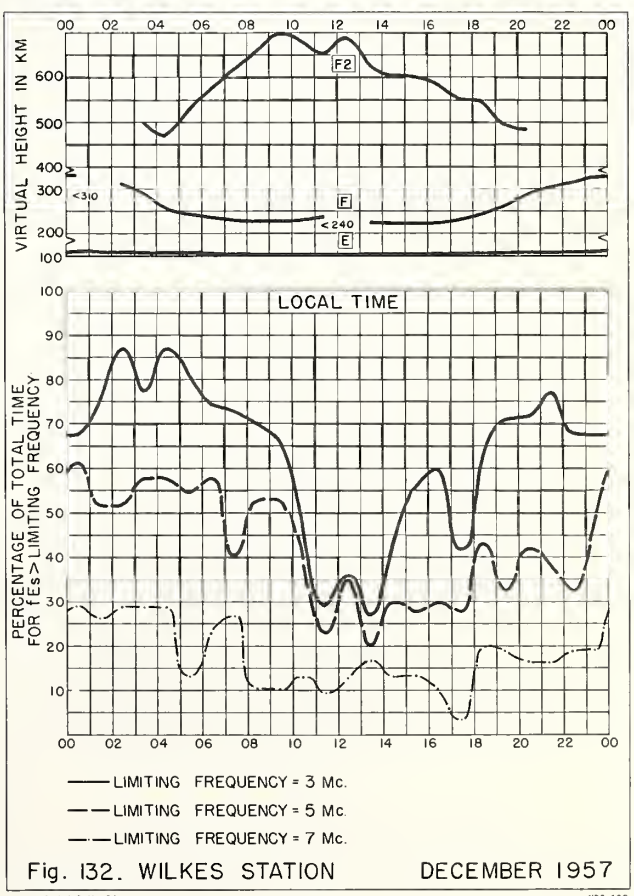


Fig. 132. WILKES STATION DECEMBER 1957

Commerce-Standards-Boulder, Colo. NBS 490

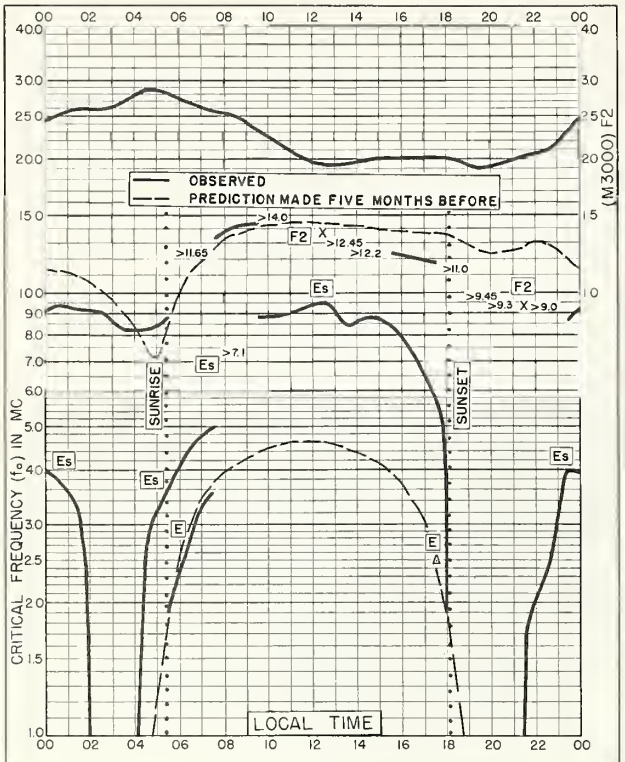


Fig. 133. La PAZ, BOLIVIA
16.5°S, 68.0°W NOVEMBER 1957

NBS 503

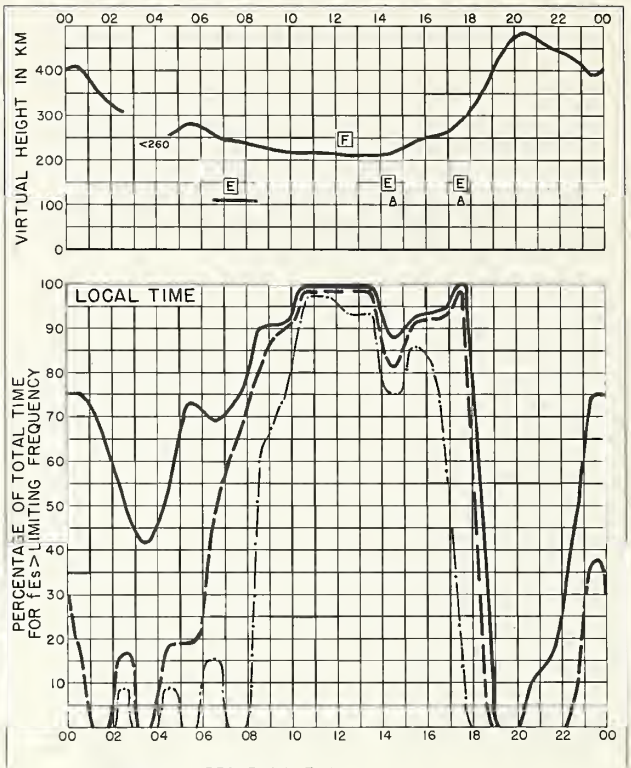


Fig. 134. La PAZ, BOLIVIA NOVEMBER 1957

NBS 490

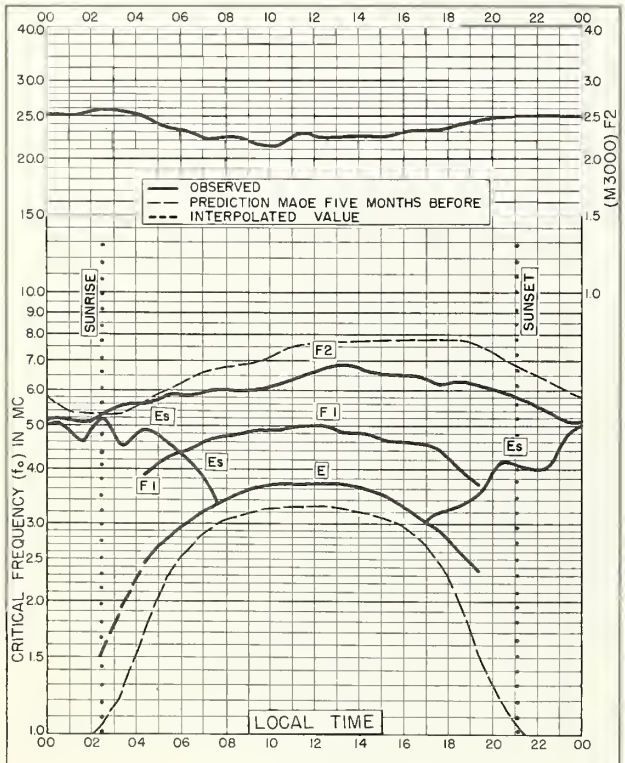


Fig. 135. WILKES STATION
66.2°S, 110.5°E NOVEMBER 1957

NBS 503

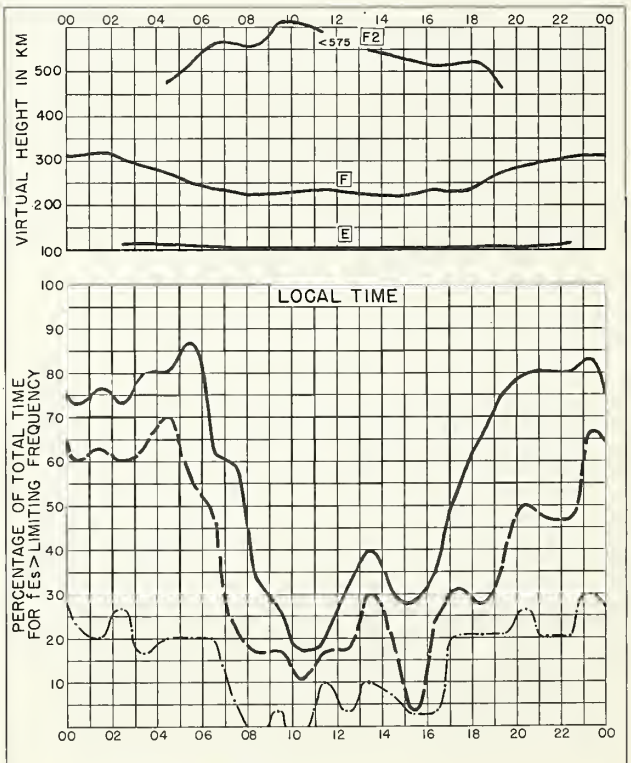


Fig. 136. WILKES STATION NOVEMBER 1957

NBS 490

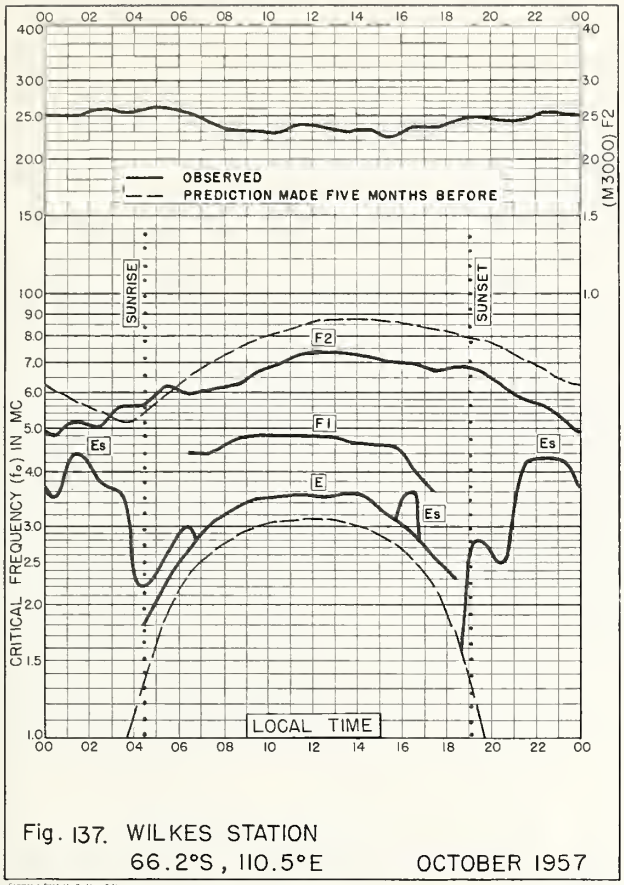


Fig. 137. WILKES STATION
66.2°S, 110.5°E OCTOBER 1957

NBS 503

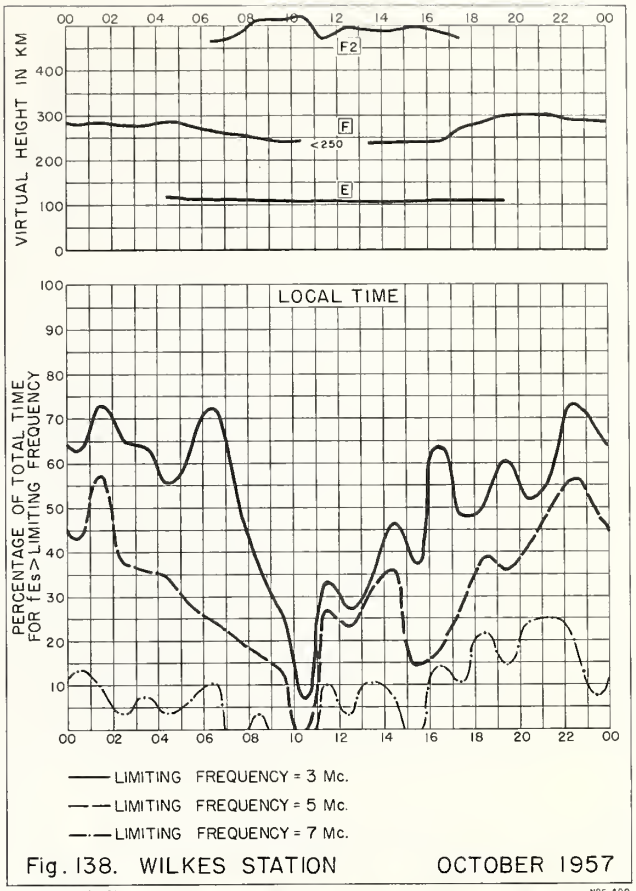


Fig. 138. WILKES STATION OCTOBER 1957

NBS 490

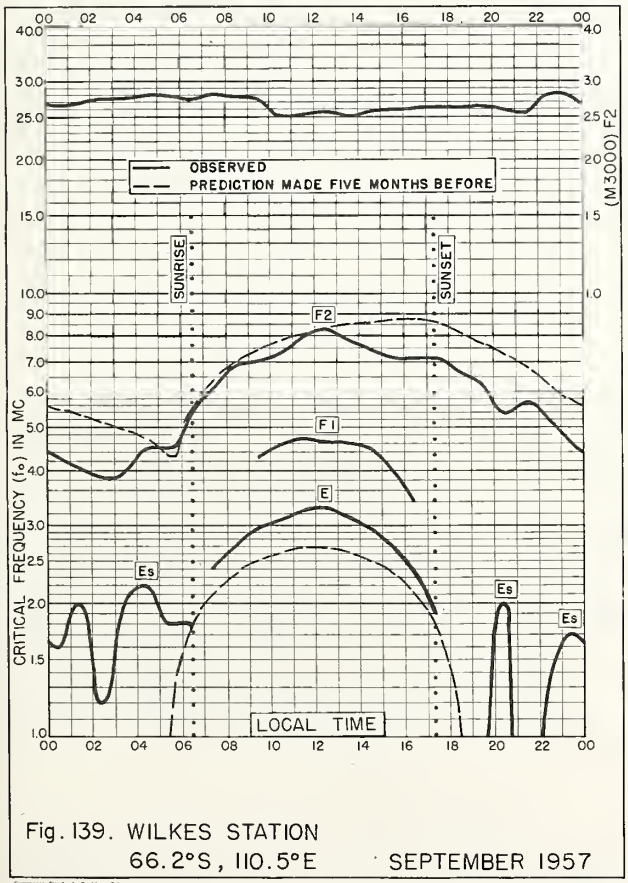


Fig. 139. WILKES STATION
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NBS 503

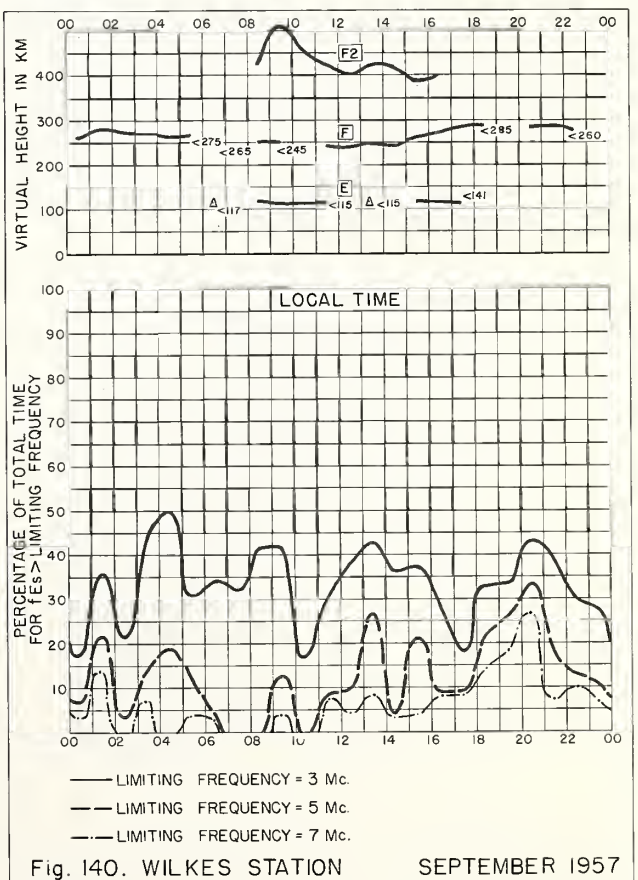

Fig. 140. WILKES STATION SEPTEMBER 1957

NBS 490

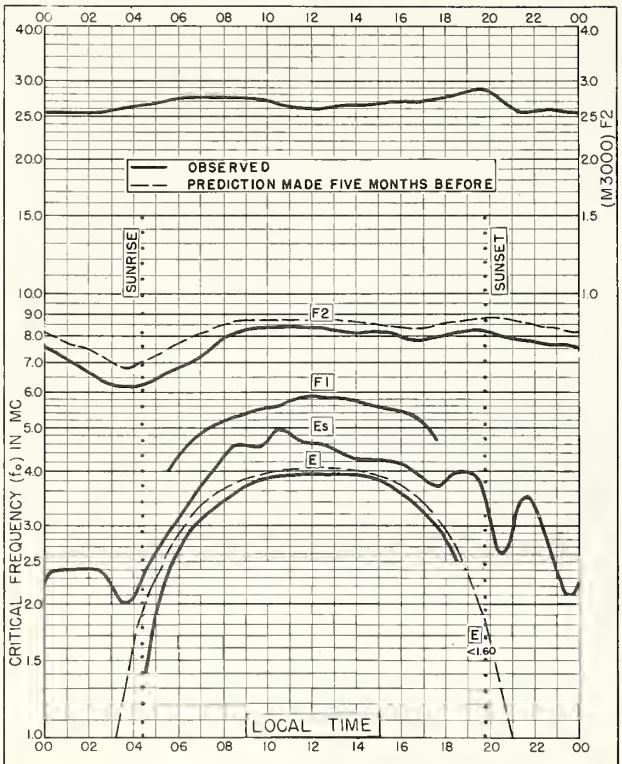

Fig. 141. FREIBURG, GERMANY
48.1°N, 7.6°E JULY 1957

NBS 503

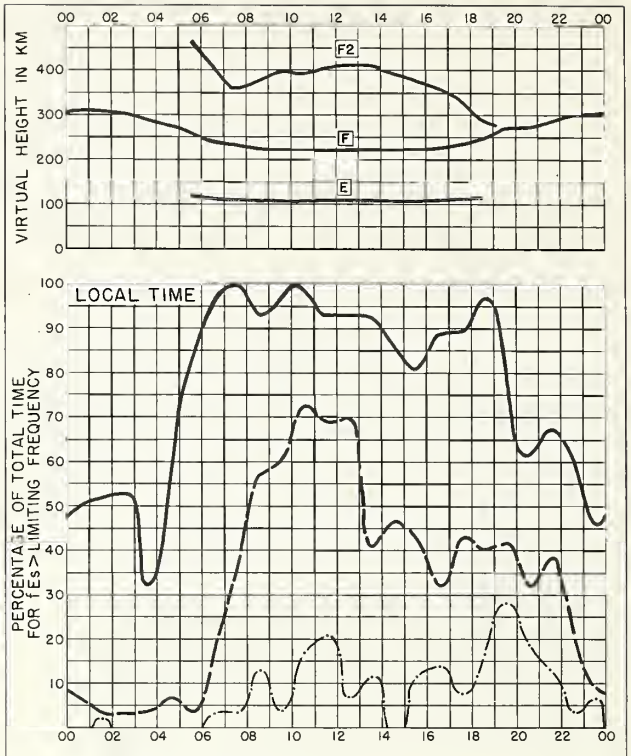

Fig. 142. FREIBURG, GERMANY JULY 1957

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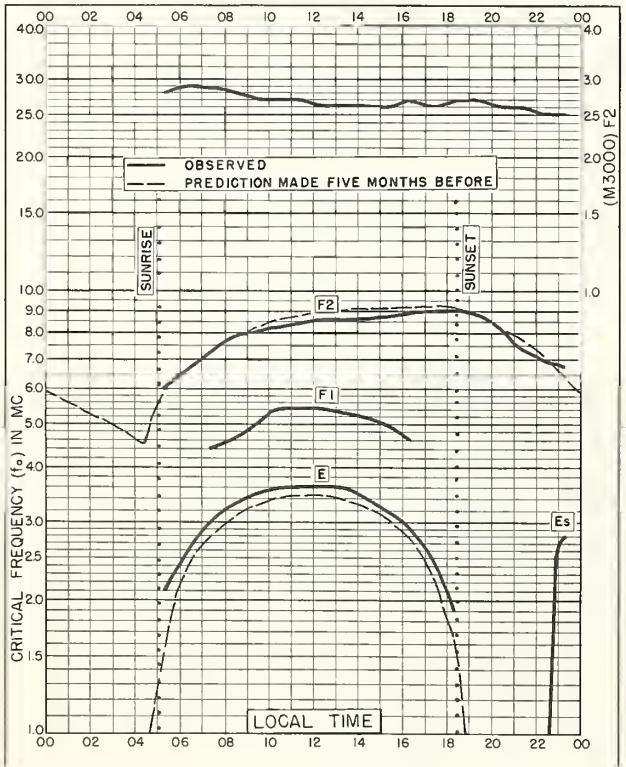
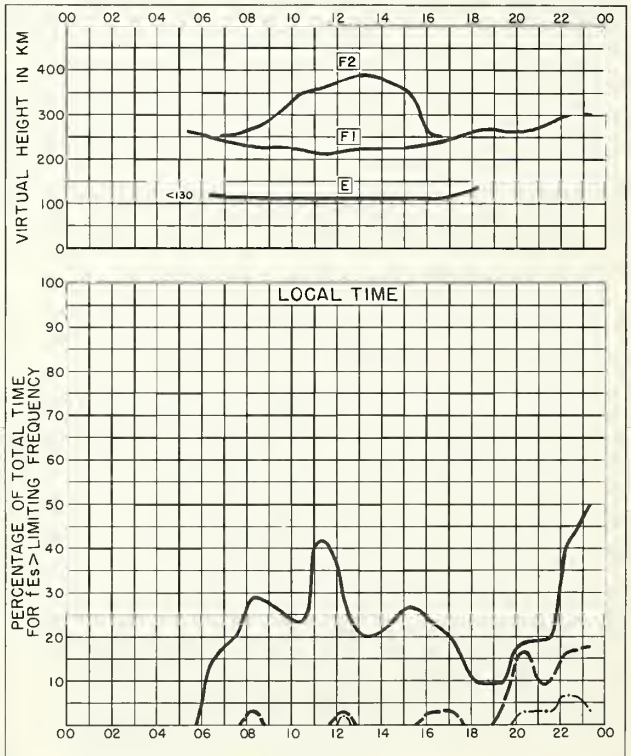


Fig. 143. CAMPBELL I.
52.5°S, 169.2°E OCTOBER 1956

NBS 503



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[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]

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CRPL—F. (Part A). Ionospheric Data.
(Part B). Solar-Geophysical Data.
Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic or other radio propagation data.

Catalog of Data:

A catalog of records and data on file at the U. S. IGY World Data Center A for Airglow and Ionosphere, Boulder Laboratories, National Bureau of Standards, which includes a fee schedule to cover the cost of supplying copies, is available upon request.

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